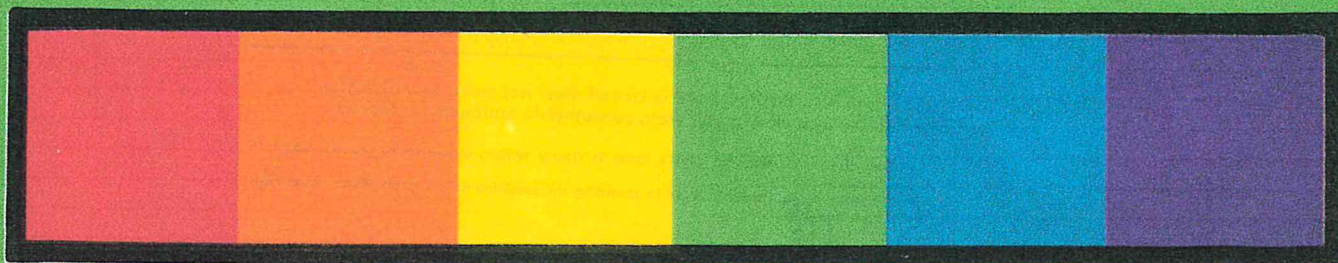


SPECTRUM MATHEMATICS SERIES

Green Book



NAME:

SPECTRUM MATHEMATICS — Green Book

Norman France
Dean of Education
University of Saskatchewan
Regina, Saskatchewan, Canada

Betty T. Clarke
Director of Teacher Recruitment
and Student Teaching
Chicago Public Schools, Chicago, Illinois

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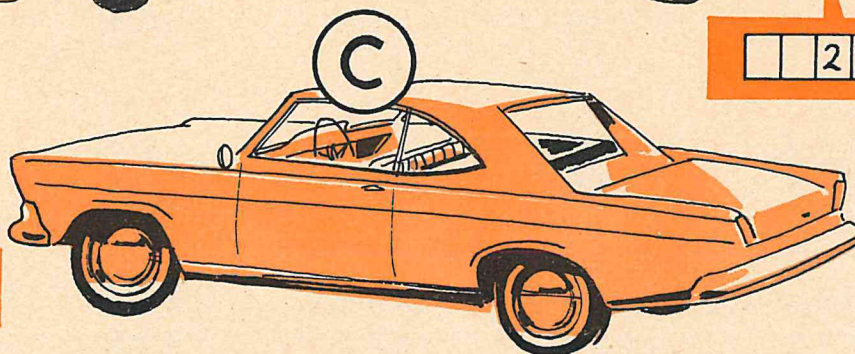
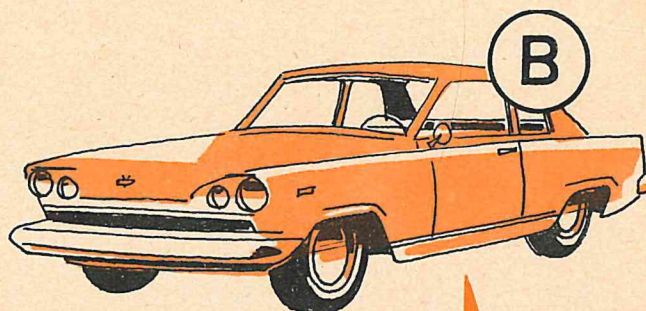
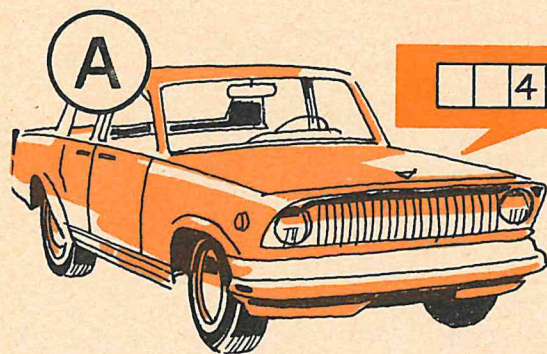
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Problems

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NAME _____



Solve each problem.

1. Odometer readings, such as shown above, tell how many miles a car has been driven. What is the total number of miles cars A and B have been driven?

Car A has been driven _____ miles.

Car B has been driven _____ miles.

Both cars have been driven _____ miles.

2. How many more miles has car A been driven than car C?

Car A has been driven _____ miles.

Car C has been driven _____ miles.

Car A has been driven _____ more miles.

3. What is the total number of miles car A, car B, and car C have been driven?

They have been driven _____ miles.

1.

2.

3.

Check your answers. Record your score.

Perfect score: 7

My score: _____

PRE-TEST—Addition and Subtraction

Add or subtract.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
1.	$\begin{array}{r} 35 \\ +3 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ +43 \\ \hline \end{array}$	$\begin{array}{r} 43 \\ +25 \\ \hline \end{array}$	$\begin{array}{r} 67 \\ +28 \\ \hline \end{array}$	$\begin{array}{r} 73 \\ +52 \\ \hline \end{array}$	$\begin{array}{r} 59 \\ +63 \\ \hline \end{array}$
2.	$\begin{array}{r} 46 \\ -5 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ -9 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ -13 \\ \hline \end{array}$	$\begin{array}{r} 148 \\ -63 \\ \hline \end{array}$	$\begin{array}{r} 175 \\ -86 \\ \hline \end{array}$	$\begin{array}{r} 214 \\ -35 \\ \hline \end{array}$
3.	$\begin{array}{r} 421 \\ +348 \\ \hline \end{array}$	$\begin{array}{r} 325 \\ +436 \\ \hline \end{array}$	$\begin{array}{r} 783 \\ +192 \\ \hline \end{array}$	$\begin{array}{r} 752 \\ +638 \\ \hline \end{array}$	$\begin{array}{r} 428 \\ +173 \\ \hline \end{array}$	$\begin{array}{r} 976 \\ +544 \\ \hline \end{array}$
4.	$\begin{array}{r} 738 \\ -125 \\ \hline \end{array}$	$\begin{array}{r} 872 \\ -439 \\ \hline \end{array}$	$\begin{array}{r} 986 \\ -394 \\ \hline \end{array}$	$\begin{array}{r} 1465 \\ -938 \\ \hline \end{array}$	$\begin{array}{r} 1831 \\ -256 \\ \hline \end{array}$	$\begin{array}{r} 3814 \\ -915 \\ \hline \end{array}$

Add or subtract.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
5.	$\begin{array}{r} 4218 \\ +3570 \\ \hline \end{array}$	$\begin{array}{r} 5831 \\ +4179 \\ \hline \end{array}$	$\begin{array}{r} 6281 \\ +3982 \\ \hline \end{array}$	$\begin{array}{r} 7543 \\ +9647 \\ \hline \end{array}$	$\begin{array}{r} 2796 \\ +8215 \\ \hline \end{array}$
6.	$\begin{array}{r} 7832 \\ -4701 \\ \hline \end{array}$	$\begin{array}{r} 4216 \\ -2437 \\ \hline \end{array}$	$\begin{array}{r} 52614 \\ -8316 \\ \hline \end{array}$	$\begin{array}{r} 38126 \\ -9433 \\ \hline \end{array}$	$\begin{array}{r} 42713 \\ -5816 \\ \hline \end{array}$
7.	$\begin{array}{r} 53246 \\ +32512 \\ \hline \end{array}$	$\begin{array}{r} 42186 \\ +17287 \\ \hline \end{array}$	$\begin{array}{r} 38743 \\ +45382 \\ \hline \end{array}$	$\begin{array}{r} 20917 \\ +34216 \\ \hline \end{array}$	$\begin{array}{r} 52843 \\ +28379 \\ \hline \end{array}$
8.	$\begin{array}{r} 82165 \\ -31042 \\ \hline \end{array}$	$\begin{array}{r} 32186 \\ -9178 \\ \hline \end{array}$	$\begin{array}{r} 42514 \\ -3495 \\ \hline \end{array}$	$\begin{array}{r} 88672 \\ -32967 \\ \hline \end{array}$	$\begin{array}{r} 98135 \\ -28459 \\ \hline \end{array}$
9.	$\begin{array}{r} 42 \\ 26 \\ +38 \\ \hline \end{array}$	$\begin{array}{r} 523 \\ 416 \\ +758 \\ \hline \end{array}$	$\begin{array}{r} 4281 \\ 3826 \\ +1435 \\ \hline \end{array}$	$\begin{array}{r} 42163 \\ 5286 \\ +25488 \\ \hline \end{array}$	$\begin{array}{r} 32815 \\ 12916 \\ +38442 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 49

My score: _____

NAME _____

Addition*T means tens.*

$$\begin{array}{r} 57 \\ 4 \\ +68 \\ \hline \end{array}$$

$7 + 4 + 8 = 19 = \underline{\quad\quad} T + 9$

H means hundreds.

$$\begin{array}{r} 57 \\ 4 \\ +68 \\ \hline \end{array}$$

$1T + 5T + 6T = 12T = \underline{\quad\quad} H + 2T$

Add.

- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> | <i>f</i> |
|----|--|---|---|---|---|--|
| 1. | $\begin{array}{r} 34 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ +21 \\ \hline \end{array}$ | $\begin{array}{r} 48 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ +36 \\ \hline \end{array}$ | $\begin{array}{r} 56 \\ +3 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ +78 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 35 \\ +24 \\ \hline \end{array}$ | $\begin{array}{r} 46 \\ +32 \\ \hline \end{array}$ | $\begin{array}{r} 37 \\ +41 \\ \hline \end{array}$ | $\begin{array}{r} 20 \\ +58 \\ \hline \end{array}$ | $\begin{array}{r} 31 \\ +38 \\ \hline \end{array}$ | $\begin{array}{r} 65 \\ +13 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 57 \\ +24 \\ \hline \end{array}$ | $\begin{array}{r} 36 \\ +27 \\ \hline \end{array}$ | $\begin{array}{r} 58 \\ +19 \\ \hline \end{array}$ | $\begin{array}{r} 52 \\ +94 \\ \hline \end{array}$ | $\begin{array}{r} 32 \\ +71 \\ \hline \end{array}$ | $\begin{array}{r} 55 \\ +93 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 35 \\ +89 \\ \hline \end{array}$ | $\begin{array}{r} 72 \\ +79 \\ \hline \end{array}$ | $\begin{array}{r} 86 \\ +45 \\ \hline \end{array}$ | $\begin{array}{r} 48 \\ +63 \\ \hline \end{array}$ | $\begin{array}{r} 37 \\ +65 \\ \hline \end{array}$ | $\begin{array}{r} 54 \\ +98 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 35 \\ 3 \\ +21 \\ \hline \end{array}$ | $\begin{array}{r} 27 \\ 18 \\ +35 \\ \hline \end{array}$ | $\begin{array}{r} 42 \\ 3 \\ +70 \\ \hline \end{array}$ | $\begin{array}{r} 52 \\ 16 \\ +59 \\ \hline \end{array}$ | $\begin{array}{r} 35 \\ 27 \\ +6 \\ \hline \end{array}$ | $\begin{array}{r} 58 \\ 37 \\ +29 \\ \hline \end{array}$ |
| 6. | $\begin{array}{r} 36 \\ 84 \\ 27 \\ +39 \\ \hline \end{array}$ | $\begin{array}{r} 42 \\ 59 \\ 26 \\ +7 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ 8 \\ 54 \\ +26 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 37 \\ 58 \\ +75 \\ \hline \end{array}$ | $\begin{array}{r} 31 \\ 80 \\ 60 \\ +9 \\ \hline \end{array}$ | $\begin{array}{r} 54 \\ 54 \\ 54 \\ +54 \\ \hline \end{array}$ |

Check your answers. Record your score.

Perfect score: 36

My score: _____

Subtraction

$$\begin{array}{r} 172 \\ -96 \\ \hline \end{array}$$

H	T
1	7
	2
	6
	6

H	T
1	7
	2
	6
	6

$$\begin{array}{r} 172 \\ -96 \\ \hline 76 \end{array}$$

To subtract ones:

rename $1\text{H} + 7\text{T} + 2$ as $1\text{H} + \underline{\hspace{1cm}}\text{T} + \underline{\hspace{1cm}}$.

$12 - 6 = \underline{\hspace{2cm}}$

To subtract tens:

rename $1\text{H} + 6\text{T}$ as $\underline{\hspace{1cm}}\text{T}$.

$160 - 90 = \underline{\hspace{2cm}}$

Subtract.

a

$$\begin{array}{r} 1. \quad 57 \\ -3 \\ \hline \end{array}$$

b

$$\begin{array}{r} 98 \\ -4 \\ \hline \end{array}$$

c

$$\begin{array}{r} 63 \\ -3 \\ \hline \end{array}$$

d

$$\begin{array}{r} 75 \\ -6 \\ \hline \end{array}$$

e

$$\begin{array}{r} 38 \\ -9 \\ \hline \end{array}$$

f

$$\begin{array}{r} 46 \\ -8 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 68 \\ -25 \\ \hline \end{array}$$

$$\begin{array}{r} 75 \\ -32 \\ \hline \end{array}$$

$$\begin{array}{r} 98 \\ -44 \\ \hline \end{array}$$

$$\begin{array}{r} 37 \\ -12 \\ \hline \end{array}$$

$$\begin{array}{r} 46 \\ -36 \\ \hline \end{array}$$

$$\begin{array}{r} 58 \\ -27 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 53 \\ -28 \\ \hline \end{array}$$

$$\begin{array}{r} 84 \\ -36 \\ \hline \end{array}$$

$$\begin{array}{r} 61 \\ -27 \\ \hline \end{array}$$

$$\begin{array}{r} 37 \\ -18 \\ \hline \end{array}$$

$$\begin{array}{r} 25 \\ -18 \\ \hline \end{array}$$

$$\begin{array}{r} 42 \\ -25 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 154 \\ -27 \\ \hline \end{array}$$

$$\begin{array}{r} 193 \\ -37 \\ \hline \end{array}$$

$$\begin{array}{r} 295 \\ -27 \\ \hline \end{array}$$

$$\begin{array}{r} 146 \\ -39 \\ \hline \end{array}$$

$$\begin{array}{r} 253 \\ -27 \\ \hline \end{array}$$

$$\begin{array}{r} 104 \\ -45 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 163 \\ -93 \\ \hline \end{array}$$

$$\begin{array}{r} 253 \\ -62 \\ \hline \end{array}$$

$$\begin{array}{r} 357 \\ -71 \\ \hline \end{array}$$

$$\begin{array}{r} 176 \\ -83 \\ \hline \end{array}$$

$$\begin{array}{r} 483 \\ -93 \\ \hline \end{array}$$

$$\begin{array}{r} 519 \\ -34 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 184 \\ -97 \\ \hline \end{array}$$

$$\begin{array}{r} 352 \\ -69 \\ \hline \end{array}$$

$$\begin{array}{r} 463 \\ -87 \\ \hline \end{array}$$

$$\begin{array}{r} 108 \\ -29 \\ \hline \end{array}$$

$$\begin{array}{r} 520 \\ -83 \\ \hline \end{array}$$

$$\begin{array}{r} 645 \\ -96 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 36

My score:

Addition

NAME _____

Th means *thousands*.

TTh means *ten thousands*.

TTh	Th	H	T
1	2		
3	3	1	6
	6	2	8
+	8	7	3
1	2	6	8
			1

Add ones.

$$6 + 8 + 7 = 21 = \underline{\hspace{2cm}} T + 1$$

Add hundreds.

$$3H + 6H + 7H = 16H = \underline{\hspace{2cm}} Th + 6H$$

Add tens.

$$2T + 1T + 2T + 3T = \underline{\hspace{2cm}} T$$

Add thousands.

$$1Th + 3Th + 8Th = 12Th = \underline{\hspace{2cm}} TTh + 2Th$$

Add.

- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> |
|----|---|--|--|--|--|
| 1. | $\begin{array}{r} 423 \\ +165 \\ \hline \end{array}$ | $\begin{array}{r} 527 \\ +319 \\ \hline \end{array}$ | $\begin{array}{r} 382 \\ +476 \\ \hline \end{array}$ | $\begin{array}{r} 528 \\ +739 \\ \hline \end{array}$ | $\begin{array}{r} 524 \\ +898 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 3168 \\ +3240 \\ \hline \end{array}$ | $\begin{array}{r} 3782 \\ +4561 \\ \hline \end{array}$ | $\begin{array}{r} 8093 \\ +1279 \\ \hline \end{array}$ | $\begin{array}{r} 5837 \\ +2896 \\ \hline \end{array}$ | $\begin{array}{r} 6789 \\ +4567 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 54312 \\ +24241 \\ \hline \end{array}$ | $\begin{array}{r} 52168 \\ +29210 \\ \hline \end{array}$ | $\begin{array}{r} 83245 \\ +13876 \\ \hline \end{array}$ | $\begin{array}{r} 42104 \\ +49863 \\ \hline \end{array}$ | $\begin{array}{r} 54372 \\ +36798 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 423 \\ 104 \\ +735 \\ \hline \end{array}$ | $\begin{array}{r} 1423 \\ 3410 \\ +6578 \\ \hline \end{array}$ | $\begin{array}{r} 4216 \\ 3807 \\ +4218 \\ \hline \end{array}$ | $\begin{array}{r} 42116 \\ 38425 \\ +10731 \\ \hline \end{array}$ | $\begin{array}{r} 22430 \\ 38654 \\ +12465 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 52316 \\ 4284 \\ +3721 \\ \hline \end{array}$ | $\begin{array}{r} 342 \\ 1563 \\ +78216 \\ \hline \end{array}$ | $\begin{array}{r} 1423 \\ 7386 \\ +214 \\ \hline \end{array}$ | $\begin{array}{r} 42305 \\ 316 \\ +4217 \\ \hline \end{array}$ | $\begin{array}{r} 5203 \\ 48310 \\ +244 \\ \hline \end{array}$ |
| 6. | $\begin{array}{r} 342 \\ 153 \\ 786 \\ +403 \\ \hline \end{array}$ | $\begin{array}{r} 2173 \\ 4168 \\ 5246 \\ +3700 \\ \hline \end{array}$ | $\begin{array}{r} 4215 \\ 3800 \\ 2407 \\ +3142 \\ \hline \end{array}$ | $\begin{array}{r} 12421 \\ 33568 \\ 45423 \\ +13154 \\ \hline \end{array}$ | $\begin{array}{r} 12421 \\ 13685 \\ 17256 \\ +60381 \\ \hline \end{array}$ |
| 7. | $\begin{array}{r} 421 \\ 3863 \\ 425 \\ +38160 \\ \hline \end{array}$ | $\begin{array}{r} 1725 \\ 42311 \\ 3820 \\ +421 \\ \hline \end{array}$ | $\begin{array}{r} 7526 \\ 380 \\ 62776 \\ +5381 \\ \hline \end{array}$ | $\begin{array}{r} 4270 \\ 38197 \\ 244 \\ +42311 \\ \hline \end{array}$ | $\begin{array}{r} 738 \\ 52865 \\ 376 \\ +25400 \\ \hline \end{array}$ |

Check your answers. Record your score.

Perfect score: 35

My score: _____

Problems

Solve each problem.

1. A trucker drove 528 miles on one trip and 746 miles on another trip. What was the total number of miles he drove on these two trips?

He drove _____ miles on one trip.

He drove _____ miles on another trip.

He drove a total of _____ miles.

2. Xemo Corporation filled 5,281 orders last week and 7,390 orders this week. How many orders were filled in these two weeks?

_____ orders were filled last week.

_____ orders were filled this week.

_____ orders were filled in the two weeks.

3. Xemo Corporation produced 42,165 xemos in January and 34,895 xemos in February. How many xemos were produced in both January and February?

_____ xemos were produced in January.

_____ xemos were produced in February.

_____ xemos were produced in both months.

4. In three weeks Mr. Jenkins carried the following number of passengers on his bus: 4,216; 3,845; and 7,281. What was the total number of passengers carried in the three weeks?

_____ passengers were carried.

5. The odometer readings on the last three cars that Mr. Williams sold were 22,163; 48,395; and 23,842. How many miles were recorded on these three cars?

_____ miles were recorded.

6. Last month three jets were flown the following number of miles: 42,816; 5,421; and 38,652. What was the total number of miles flown?

_____ miles were flown.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 12

My score: _____

NAME _____

Subtraction

A	B	C	D	E	F																																																																																																																																																
<table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th></tr><tr><td>4</td><td>2</td><td>0</td><td>1</td></tr><tr><td>-</td><td>3</td><td>8</td><td>4</td></tr><tr><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td>1</td></tr></table>	TTh	Th	H	T	4	2	0	1	-	3	8	4				7				6				1	<table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th></tr><tr><td>4</td><td>2</td><td>0</td><td>1</td></tr><tr><td>-</td><td>3</td><td>8</td><td>4</td></tr><tr><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td>1</td></tr></table>	TTh	Th	H	T	4	2	0	1	-	3	8	4				7				6				1	<table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th></tr><tr><td>4</td><td>2</td><td>0</td><td>1</td></tr><tr><td>-</td><td>3</td><td>8</td><td>4</td></tr><tr><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td>1</td></tr></table>	TTh	Th	H	T	4	2	0	1	-	3	8	4				7				6				1	<table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th></tr><tr><td>4</td><td>2</td><td>0</td><td>1</td></tr><tr><td>-</td><td>3</td><td>8</td><td>4</td></tr><tr><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td>1</td></tr></table>	TTh	Th	H	T	4	2	0	1	-	3	8	4				7				6				1	<table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th></tr><tr><td>4</td><td>2</td><td>0</td><td>1</td></tr><tr><td>-</td><td>3</td><td>8</td><td>4</td></tr><tr><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td>1</td></tr></table>	TTh	Th	H	T	4	2	0	1	-	3	8	4				7				6				1	<table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th></tr><tr><td>4</td><td>2</td><td>0</td><td>1</td></tr><tr><td>-</td><td>3</td><td>8</td><td>4</td></tr><tr><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td>1</td></tr></table>	TTh	Th	H	T	4	2	0	1	-	3	8	4				7				6				1
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A Subtract ones. $7 - 6 =$ _____

B To subtract tens:

rename 4TTh + 2Th + 0H + 1T as 4TTh + _____Th + _____H + 1T,

C rename 4TTh + 1Th + 10H + 1T as 4TTh + 1Th + _____H + _____T. $110 - 40 =$ _____D Subtract hundreds. $900 - 800 =$ _____

E To subtract thousands:

rename 4TTh + 1Th as _____TTh + _____Th. $11000 - 3000 =$ _____F Subtract ten thousands. $30000 - 0 =$ _____

Subtract.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	$\begin{array}{r} 736 \\ -324 \\ \hline \end{array}$	$\begin{array}{r} 546 \\ -329 \\ \hline \end{array}$	$\begin{array}{r} 831 \\ -480 \\ \hline \end{array}$	$\begin{array}{r} 516 \\ -337 \\ \hline \end{array}$	$\begin{array}{r} 703 \\ -299 \\ \hline \end{array}$
2.	$\begin{array}{r} 4216 \\ -314 \\ \hline \end{array}$	$\begin{array}{r} 2468 \\ -539 \\ \hline \end{array}$	$\begin{array}{r} 5468 \\ -573 \\ \hline \end{array}$	$\begin{array}{r} 2345 \\ -456 \\ \hline \end{array}$	$\begin{array}{r} 1306 \\ -457 \\ \hline \end{array}$
3.	$\begin{array}{r} 5246 \\ -2215 \\ \hline \end{array}$	$\begin{array}{r} 3872 \\ -2438 \\ \hline \end{array}$	$\begin{array}{r} 4351 \\ -2263 \\ \hline \end{array}$	$\begin{array}{r} 4020 \\ -1706 \\ \hline \end{array}$	$\begin{array}{r} 7503 \\ -2455 \\ \hline \end{array}$
4.	$\begin{array}{r} 53211 \\ -4298 \\ \hline \end{array}$	$\begin{array}{r} 42683 \\ -3167 \\ \hline \end{array}$	$\begin{array}{r} 54216 \\ -5299 \\ \hline \end{array}$	$\begin{array}{r} 60831 \\ -7081 \\ \hline \end{array}$	$\begin{array}{r} 29540 \\ -5219 \\ \hline \end{array}$
5.	$\begin{array}{r} 42465 \\ -21528 \\ \hline \end{array}$	$\begin{array}{r} 38429 \\ -14953 \\ \hline \end{array}$	$\begin{array}{r} 76543 \\ -37835 \\ \hline \end{array}$	$\begin{array}{r} 82106 \\ -47297 \\ \hline \end{array}$	$\begin{array}{r} 30907 \\ -18608 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 25

My score: _____

Problems

Solve each problem.

1. It takes 500 points to win a prize. Pat has 385 points now. How many more points does she need to win a prize?

_____ points are needed to win a prize.

Pat now has _____ points.

She needs _____ more points.

2. There are 1,516 pupils enrolled at Webb School. Of these, 842 are girls. How many are boys?

_____ pupils are enrolled.

_____ of the pupils are girls.

_____ of the pupils are boys.

3. Factory A employs 5,281 people and factory B employs 3,817 people. How many more people does factory A employ than factory B?

Factory A employs _____ more people.

4. Mr. Wells had 52,816 miles on his car when he traded it. The car he traded for has 4,357 miles on it. How many fewer miles does it have than the older car?

It has _____ fewer miles.

5. Last year 42,169 orders were shipped from a warehouse. So far this year 5,837 orders have been shipped. How many more orders must be shipped this year in order to match the total for last year?

_____ more orders must be shipped.

6. The odometer on Mr. Wilson's car reads 52,116. On Mr. Ford's, the reading is 38,429. How many more miles are on Mr. Wilson's car than on Mr. Ford's?

_____ more miles are on Mr. Wilson's car.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 10

My score: _____

Addition and Subtraction

Add or subtract.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
1.	$\begin{array}{r} 32 \\ +6 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ +48 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ +35 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ +26 \\ \hline \end{array}$	$\begin{array}{r} 89 \\ +50 \\ \hline \end{array}$	$\begin{array}{r} 78 \\ +57 \\ \hline \end{array}$

2.	$\begin{array}{r} 58 \\ -3 \\ \hline \end{array}$	$\begin{array}{r} 72 \\ -21 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ -38 \\ \hline \end{array}$	$\begin{array}{r} 159 \\ -93 \\ \hline \end{array}$	$\begin{array}{r} 143 \\ -85 \\ \hline \end{array}$	$\begin{array}{r} 202 \\ -37 \\ \hline \end{array}$
----	---	--	--	---	---	---

3.	$\begin{array}{r} 523 \\ +364 \\ \hline \end{array}$	$\begin{array}{r} 428 \\ +537 \\ \hline \end{array}$	$\begin{array}{r} 683 \\ +194 \\ \hline \end{array}$	$\begin{array}{r} 385 \\ +276 \\ \hline \end{array}$	$\begin{array}{r} 483 \\ +629 \\ \hline \end{array}$	$\begin{array}{r} 753 \\ +869 \\ \hline \end{array}$
----	--	--	--	--	--	--

4.	$\begin{array}{r} 783 \\ -502 \\ \hline \end{array}$	$\begin{array}{r} 926 \\ -418 \\ \hline \end{array}$	$\begin{array}{r} 564 \\ -283 \\ \hline \end{array}$	$\begin{array}{r} 1925 \\ -137 \\ \hline \end{array}$	$\begin{array}{r} 2436 \\ -648 \\ \hline \end{array}$	$\begin{array}{r} 1926 \\ -928 \\ \hline \end{array}$
----	--	--	--	---	---	---

Add or subtract.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
5.	$\begin{array}{r} 5231 \\ +3468 \\ \hline \end{array}$	$\begin{array}{r} 4661 \\ +2179 \\ \hline \end{array}$	$\begin{array}{r} 3157 \\ +6930 \\ \hline \end{array}$	$\begin{array}{r} 2087 \\ +9237 \\ \hline \end{array}$	$\begin{array}{r} 4281 \\ +6759 \\ \hline \end{array}$

6.	$\begin{array}{r} 8426 \\ -3312 \\ \hline \end{array}$	$\begin{array}{r} 7531 \\ -3452 \\ \hline \end{array}$	$\begin{array}{r} 8426 \\ -2756 \\ \hline \end{array}$	$\begin{array}{r} 13041 \\ -9158 \\ \hline \end{array}$	$\begin{array}{r} 25308 \\ -8499 \\ \hline \end{array}$
----	--	--	--	---	---

7.	$\begin{array}{r} 63125 \\ +10420 \\ \hline \end{array}$	$\begin{array}{r} 42163 \\ +45387 \\ \hline \end{array}$	$\begin{array}{r} 28135 \\ +47385 \\ \hline \end{array}$	$\begin{array}{r} 61702 \\ +28715 \\ \hline \end{array}$	$\begin{array}{r} 37839 \\ +57893 \\ \hline \end{array}$
----	--	--	--	--	--

8.	$\begin{array}{r} 72519 \\ -30418 \\ \hline \end{array}$	$\begin{array}{r} 83162 \\ -35087 \\ \hline \end{array}$	$\begin{array}{r} 52083 \\ -41839 \\ \hline \end{array}$	$\begin{array}{r} 98035 \\ -68746 \\ \hline \end{array}$	$\begin{array}{r} 63613 \\ -55895 \\ \hline \end{array}$
----	--	--	--	--	--

9.	$\begin{array}{r} 23 \\ 34 \\ +42 \\ \hline \end{array}$	$\begin{array}{r} 426 \\ 709 \\ +358 \\ \hline \end{array}$	$\begin{array}{r} 4216 \\ 5384 \\ +2196 \\ \hline \end{array}$	$\begin{array}{r} 22514 \\ 43868 \\ +21706 \\ \hline \end{array}$	$\begin{array}{r} 82965 \\ 372 \\ +1451 \\ \hline \end{array}$
----	--	---	--	---	--

Check your answers. Record your score.

Perfect score: 49

My score: _____

Problems

Answer each question.

1. In a recent contest, Mary earned 758 points, Helen earned 929 points, and Bill earned 1,356 points. How many points did the two girls earn?

Are you to add or subtract? _____

How many points did the two girls earn? _____

2. In problem 1, how many more points did Bill earn than Helen?

Are you to add or subtract? _____

How many more points did

Bill earn than Helen? _____

3. In problem 1, how many points did all three people earn?

Are you to add or subtract? _____

How many points did all three earn? _____

4. This month 32,526 people visited the museum. Last month 28,831 people visited the museum. How many more people visited the museum this month than last month?

Are you to add or subtract? _____

How many more people visited the

museum this month than last month? _____

5. In problem 4, how many people visited the museum this month and last month?

Are you to add or subtract? _____

How many people visited the

museum this month and last month? _____

6. At the beginning of last year 52,116 cars were registered. There were 4,913 new cars registered the first six months and 3,085 the second six months. How many cars were registered at the end of the year?

Are you to add or subtract? _____

How many cars were registered

at the end of the year? _____

Check your answers. Record your score.

Perfect score: 12

My score: _____

TEST—Addition and Subtraction

Add or subtract.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	$\begin{array}{r} 42 \\ +9 \\ \hline \end{array}$	$\begin{array}{r} 75 \\ +83 \\ \hline \end{array}$	$\begin{array}{r} 96 \\ +58 \\ \hline \end{array}$	$\begin{array}{r} 147 \\ +129 \\ \hline \end{array}$	$\begin{array}{r} 345 \\ +286 \\ \hline \end{array}$

2.	$\begin{array}{r} 54 \\ -6 \\ \hline \end{array}$	$\begin{array}{r} 39 \\ -27 \\ \hline \end{array}$	$\begin{array}{r} 158 \\ -79 \\ \hline \end{array}$	$\begin{array}{r} 384 \\ -215 \\ \hline \end{array}$	$\begin{array}{r} 580 \\ -483 \\ \hline \end{array}$
----	---	--	---	--	--

3.	$\begin{array}{r} 4216 \\ -3817 \\ \hline \end{array}$	$\begin{array}{r} 15382 \\ -8293 \\ \hline \end{array}$	$\begin{array}{r} 42165 \\ -38479 \\ \hline \end{array}$	$\begin{array}{r} 52163 \\ -44318 \\ \hline \end{array}$	$\begin{array}{r} 84362 \\ -53977 \\ \hline \end{array}$
----	--	---	--	--	--

4.	$\begin{array}{r} 5421 \\ +8892 \\ \hline \end{array}$	$\begin{array}{r} 5843 \\ +6969 \\ \hline \end{array}$	$\begin{array}{r} 52816 \\ +32558 \\ \hline \end{array}$	$\begin{array}{r} 4235 \\ 6815 \\ +42916 \\ \hline \end{array}$	$\begin{array}{r} 38433 \\ 12758 \\ +28906 \\ \hline \end{array}$
----	--	--	--	---	---

Answer each question.

5. At the end of last year, the odometer reading on Mr. Richards' car was 33,384. He drove the car 29,458 miles last year. What was the odometer reading at the beginning of last year?

5.

Are you to add or subtract? _____

What was the odometer reading
at the beginning of last year? _____

6. In problem 5, Mr. Richards expects to drive the car the same number of miles this year as he did last year. If he does, what will the odometer reading be at the end of this year?

6.

Are you to add or subtract? _____

What will the odometer reading
be at the end of this year? _____

7. The odometer readings of the last three cars Mr. Richards sold were 42,516; 38,342; and 14,208. What was the total number of miles the three cars had been driven?

7.

What was the total number
of miles the cars had been driven? _____

Check your answers. Record your score.

Perfect score: 25

My score: _____

PRE-TEST—Multiplication and Division

Multiply.

$$\begin{array}{r} a \\ 1. \quad 33 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 48 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 304 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 432 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 1234 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 6789 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 133 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 456 \\ \times 34 \\ \hline \end{array}$$

$$\begin{array}{r} 1231 \\ \times 22 \\ \hline \end{array}$$

$$\begin{array}{r} 5783 \\ \times 45 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 123 \\ \times 321 \\ \hline \end{array}$$

$$\begin{array}{r} 576 \\ \times 435 \\ \hline \end{array}$$

$$\begin{array}{r} 1302 \\ \times 132 \\ \hline \end{array}$$

$$\begin{array}{r} 4563 \\ \times 478 \\ \hline \end{array}$$

$$\begin{array}{r} 5009 \\ \times 837 \\ \hline \end{array}$$

Divide.

$$4. \quad 25 \overline{) 225}$$

$$14 \overline{) 518}$$

$$27 \overline{) 463}$$

$$14 \overline{) 4550}$$

$$95 \overline{) 3610}$$

$$5. \quad 53 \overline{) 7832}$$

$$92 \overline{) 12420}$$

$$58 \overline{) 45530}$$

$$32 \overline{) 78216}$$

$$73 \overline{) 52914}$$

Check your answers. Record your score.

Perfect score: 25

My score: _____

Division

Divide.

a

b

c

d

e

f

g

h

1. $1 \overline{)2}$

$1 \overline{)3}$

$1 \overline{)5}$

$1 \overline{)4}$

$1 \overline{)6}$

$1 \overline{)9}$

$1 \overline{)8}$

$1 \overline{)1}$

2. $2 \overline{)18}$

$2 \overline{)12}$

$2 \overline{)14}$

$2 \overline{)16}$

$2 \overline{)8}$

$2 \overline{)10}$

$2 \overline{)4}$

$2 \overline{)2}$

3. $3 \overline{)0}$

$3 \overline{)15}$

$3 \overline{)9}$

$3 \overline{)12}$

$3 \overline{)24}$

$3 \overline{)18}$

$3 \overline{)3}$

$3 \overline{)21}$

4. $4 \overline{)20}$

$4 \overline{)8}$

$4 \overline{)4}$

$4 \overline{)12}$

$4 \overline{)32}$

$4 \overline{)24}$

$4 \overline{)36}$

$4 \overline{)16}$

5. $5 \overline{)30}$

$5 \overline{)45}$

$5 \overline{)0}$

$5 \overline{)10}$

$5 \overline{)25}$

$5 \overline{)15}$

$5 \overline{)40}$

$5 \overline{)5}$

6. $6 \overline{)30}$

$6 \overline{)24}$

$6 \overline{)42}$

$6 \overline{)6}$

$6 \overline{)12}$

$6 \overline{)36}$

$6 \overline{)54}$

$6 \overline{)48}$

7. $7 \overline{)0}$

$7 \overline{)21}$

$7 \overline{)14}$

$7 \overline{)56}$

$7 \overline{)49}$

$7 \overline{)63}$

$7 \overline{)35}$

$7 \overline{)28}$

8. $8 \overline{)16}$

$8 \overline{)0}$

$8 \overline{)56}$

$8 \overline{)72}$

$8 \overline{)48}$

$8 \overline{)32}$

$8 \overline{)24}$

$8 \overline{)40}$

9. $9 \overline{)45}$

$9 \overline{)27}$

$9 \overline{)36}$

$9 \overline{)63}$

$9 \overline{)9}$

$9 \overline{)81}$

$9 \overline{)0}$

$9 \overline{)54}$

Check your answers. Record your score.

Perfect score: 72

My score: _____

NAME _____

Multiplication

A

Th	H	T
9	8	7
× 5		
0		

B

Th	H	T
9	8	7
× 5		
0		

C

Th	H	T
9	8	7
× 5		
0		

D

TTh	Th	H	T
9	8	7	6
× 5			
0			

A $5 \times 6 = 30$

$30 = \underline{\hspace{2cm}} T + 0$

C $5 \times 800 = 4000$

$4000 + 300 = 4300 = \underline{\hspace{2cm}} Th + 3H$

B $5 \times 70 = 350$

$350 + 30 = 380 = \underline{\hspace{2cm}} H + 8T$

D $5 \times 9000 = 45000$

$45000 + 4000 = 49000 = \underline{\hspace{2cm}} TTh + 9Th$

Multiply.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	$\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 82 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 78 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 95 \\ \times 6 \\ \hline \end{array}$
2.	$\begin{array}{r} 421 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 123 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 241 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 501 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 159 \\ \times 6 \\ \hline \end{array}$
3.	$\begin{array}{r} 783 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 538 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 762 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 954 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 473 \\ \times 9 \\ \hline \end{array}$
4.	$\begin{array}{r} 1033 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 3216 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 3172 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 5014 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 3257 \\ \times 3 \\ \hline \end{array}$
5.	$\begin{array}{r} 1478 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 5738 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 4826 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 5384 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 7083 \\ \times 5 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 25

My score: _____

Problems

Solve each problem.

1. Mrs. Clarke has 24 pupils in her class. She gave each pupil 5 sheets of paper. How many sheets of paper did she use?

_____ pupils are in class.

_____ sheets of paper are given each pupil.

_____ sheets of paper are used.

2. Each bus can carry 77 passengers. How many passengers can be carried on 7 such buses?

Each bus can carry _____ passengers.

There are _____ buses in all.

A total of _____ passengers can be carried.

3. There are 365 days in a year, except leap year which has 366 days. How many days are there in 3 years if there is no leap year included?

There are _____ days in a year.

The number of days in _____ years is to be found.

There are _____ days in 3 years.

4. Seven hundred seventy-five meals were prepared each day for 5 days. How many meals were prepared in the 5 days?

_____ meals were prepared in the 5 days.

5. Michael earned 3,401 points. His sister earned twice as many. How many points did his sister earn?

His sister earned _____ points.

6. A machine is designed to produce 2,965 parts each day. How many parts should the machine produce in 7 days?

The machine should produce _____ parts in 7 days.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 12

My score: _____

NAME _____

Multiplication

$$\begin{array}{r} 4567 \\ \times 321 \\ \hline \end{array}$$

$$\begin{array}{r} 4567 \\ \times 321 \\ \hline 4567 \end{array}$$

$$\begin{array}{r} 4567 \\ \times 321 \\ \hline 4567 \\ 91340 \end{array}$$

$$\begin{array}{r} 4567 \\ \times 321 \\ \hline 4567 \\ 91340 \\ 1370100 \end{array}$$

$$\begin{array}{r} 4567 \\ \times 321 \\ \hline 4567 \\ 91340 \\ 1370100 \\ \hline 1466007 \end{array}$$

$1 \times 4567 = \underline{\hspace{2cm}}$

$20 \times 4567 = \underline{\hspace{2cm}}$

$300 \times 4567 = \underline{\hspace{2cm}}$

$4567 + 91340 + 1370100 = \underline{\hspace{2cm}}$

Multiply.

$$\begin{array}{r} a \\ 1. \quad 57 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ \quad 48 \\ \times 32 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ \quad 75 \\ \times 63 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 135 \\ \times 48 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 276 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 531 \\ \times 27 \\ \hline \end{array}$$

$$\begin{array}{r} 835 \\ \times 92 \\ \hline \end{array}$$

$$\begin{array}{r} 1864 \\ \times 27 \\ \hline \end{array}$$

$$\begin{array}{r} 3186 \\ \times 54 \\ \hline \end{array}$$

$$\begin{array}{r} 7083 \\ \times 92 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} a \\ 3. \quad 413 \\ \times 214 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ \quad 564 \\ \times 532 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ \quad 217 \\ \times 416 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ \quad 908 \\ \times 592 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 1564 \\ \times 795 \\ \hline \end{array}$$

$$\begin{array}{r} 3827 \\ \times 630 \\ \hline \end{array}$$

$$\begin{array}{r} 9216 \\ \times 205 \\ \hline \end{array}$$

$$\begin{array}{r} 5043 \\ \times 684 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 18

My score: _____

Problems

Solve each problem.

1. Each box weighs 28 pounds. What is the weight of 35 such boxes?

Each box weighs _____ pounds.

There are _____ boxes in all.

The total weight is _____ pounds.

2. There are 19 carpenters working for a construction firm. Each worked 47 hours last week. What is the total number of hours they worked last week?

Each carpenter worked _____ hours.

There are _____ carpenters in all.

_____ hours were worked.

3. The production schedule estimates that 321 machines can be produced each week. At that rate, how many machines can be produced in 52 weeks?

There are _____ machines scheduled to be produced each week.

There are _____ weeks.

_____ machines can be produced in 52 weeks.

4. The rail distance between Los Angeles and New York is 3,257 miles. How many miles would a train travel if it made 32 one-way trips between these two cities?

The train would travel _____ miles.

5. There are 731 cases of zoopers in the warehouse. Each case contains 144 zoopers. How many zoopers are in the warehouse?

There are _____ zoopers in the warehouse.

6. There are 1,440 minutes in one day. How many minutes are in 365 days?

There are _____ minutes in 365 days.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 12

My score: _____

Division

Study how to divide 2074 by 6.

X	1H	2H	3H	4H
6	6H	12H	18H	24H

2074 is between 18H and 24H, so $2074 \div 6$ is between

3H and 4H. The hundreds digit is 3.

Th	H	T
	3	
6	20	74
	1800	
	274	

(300×6)
($2074 - 1800$)

X	1T	2T	3T	4T	5T
6	6T	12T	18T	24T	30T

274 is between 24T and 30T, so $274 \div 6$ is between

4T and _____. The tens digit is _____.

Th	H	T
	3	4
6	20	74
	1800	
	274	
	240	
	34	

(40×6)
($274 - 240$)

X	1	2	3	4	5	6	7
6	6	12	18	24	30	36	42

34 is between 30 and 36, so $34 \div 6$ is between

_____ and _____. The ones digit is _____.

Th	H	T
	3	4
6	20	74
	1800	
	274	
	240	
	34	
	30	
	4	

(5×6)
remainder(r) 4--($34 - 30$)

Divide.

*a**b**c**d**e*

1. $4 \overline{)92}$

$3 \overline{)58}$

$3 \overline{)72}$

$4 \overline{)77}$

$6 \overline{)810}$

2. $3 \overline{)225}$

$6 \overline{)590}$

$6 \overline{)8080}$

$9 \overline{)4739}$

$6 \overline{)4254}$

Check your answers. Record your score.

Perfect score: 10

My score: _____

Problems

Solve each problem.

1. Miss Wilson gave 5 sheets of paper to each pupil. She had 2 sheets left. She had 92 sheets to begin with. How many pupils received paper?

There were _____ sheets of paper in all.

Each pupil received _____ sheets of paper.

There were _____ pupils who received paper.

2. Three people earned 774 points in a contest. Suppose each person earned the same number of points. How many points did each person earn?

Each person earned _____ points.

3. As each new car comes off an assembly line, it receives 8 gallons of gasoline. How many new cars can receive gasoline from a tank containing 2,440 gallons?

_____ new cars can receive gasoline.

4. Four pounds of candy are placed in each box. How many boxes are needed to package 273 pounds of candy? How many pounds of candy would be left over?

_____ boxes are needed.

_____ pound of candy would be left over.

5. A train travels 6,516 miles to make a round trip between New York and Los Angeles. How many miles would the train travel from Los Angeles to New York?

The train would travel _____ miles.

6. Each carton of pop holds 8 bottles. How many full cartons could be filled with 3,075 bottles of pop? How many bottles of pop would be left over?

_____ cartons could be filled.

_____ bottles would be left over.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 10

My score: _____

Division

Study how to divide 28888 by 95.

X	1H	2H	3H	4H
95	95H	190H	285H	380H

28888 is between 285H and 380H, so $28888 \div 95$ is between 3H and 4H.

The hundreds digit is 3.

$$\begin{array}{r} 3 \\ 95 \overline{) 28888} \\ \underline{28500} \quad (300 \times 95) \\ 388 \quad (28888 - 28500) \end{array}$$

X	1T	2T	3T	4T
95	95T	190T	285T	380T

Since 388 is less than 95T, the tens digit is 0.

$$\begin{array}{r} 30 \\ 95 \overline{) 28888} \\ \underline{28500} \\ 388 \\ \underline{0} \quad (0 \times 95) \\ 388 \quad (388 - 0) \end{array}$$

X	1	2	3	4	5
95	95	190	285	380	475

388 is between 380 and 475, so $388 \div 95$ is

between _____ and _____.

The ones digit is _____.

$$\begin{array}{r} 304 \text{ r}8 \\ 95 \overline{) 28888} \\ \underline{28500} \\ 388 \\ \underline{0} \\ 388 \\ \underline{380} \quad (4 \times 95) \\ 8 \quad (388 - 380) \end{array}$$

Divide.

a

b

c

d

e

1. $25 \overline{) 810}$

$33 \overline{) 891}$

$18 \overline{) 819}$

$27 \overline{) 727}$

$75 \overline{) 6900}$

2. $54 \overline{) 7695}$

$28 \overline{) 9698}$

$98 \overline{) 34937}$

$75 \overline{) 39400}$

$42 \overline{) 14742}$

Check your answers. Record your score.

Perfect score: 10

My score: _____

Problems

Solve each problem.

1. There are 988 pupils enrolled at King School. There are 26 pupils in each class. How many classes are in King School?

_____ pupils are enrolled.

_____ pupils are in each class.

There are _____ classes in all.

2. Mr. Lodey has 987 parts to pack. He will pack 24 parts in each box. How many boxes will he need? How many parts will be left over?

He will need _____ boxes.

He will have _____ parts left over.

3. A bank considers 30 days to be a month. How many months would there be in 9,295 days? How many days would be left over?

There would be _____ months.

There would be _____ days left over.

4. During a two-week period, 75 employees worked a total of 5,625 hours. Each employee worked the same number of hours. How many hours did each employee work?

Each employee worked _____ hours.

5. There are 76 sections with a total of 17,100 seats in the new stadium. Each section has the same number of seats. How many seats are in each section?

There are _____ seats in each section.

6. Three dozen grapefruit are packed in a case. How many cases would be needed to pack 27,100 grapefruit? How many grapefruit would be left over?

_____ cases would be needed.

_____ grapefruit would be left over.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 11

My score: _____

NAME _____

Multiplication and Division

Multiply.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	$\begin{array}{r} 35 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 347 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 385 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 1438 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 4906 \\ \times 6 \\ \hline \end{array}$

2.	$\begin{array}{r} 37 \\ \times 85 \\ \hline \end{array}$	$\begin{array}{r} 48 \\ \times 54 \\ \hline \end{array}$	$\begin{array}{r} 357 \\ \times 92 \\ \hline \end{array}$	$\begin{array}{r} 289 \\ \times 38 \\ \hline \end{array}$	$\begin{array}{r} 4356 \\ \times 27 \\ \hline \end{array}$
----	--	--	---	---	--

3.	$\begin{array}{r} 158 \\ \times 132 \\ \hline \end{array}$	$\begin{array}{r} 706 \\ \times 315 \\ \hline \end{array}$	$\begin{array}{r} 345 \\ \times 221 \\ \hline \end{array}$	$\begin{array}{r} 709 \\ \times 743 \\ \hline \end{array}$	$\begin{array}{r} 689 \\ \times 838 \\ \hline \end{array}$
----	--	--	--	--	--

Divide.

4.	$22 \overline{) 386}$	$35 \overline{) 452}$	$25 \overline{) 950}$	$12 \overline{) 1468}$	$54 \overline{) 8478}$
----	-----------------------	-----------------------	-----------------------	------------------------	------------------------

5.	$15 \overline{) 3092}$	$75 \overline{) 4728}$	$37 \overline{) 15725}$	$53 \overline{) 24815}$	$43 \overline{) 45683}$
----	------------------------	------------------------	-------------------------	-------------------------	-------------------------

Check your answers. Record your score.

Perfect score: 25

My score: _____

Problems

Answer each question.

1. It takes 25 hours to produce one zemble. How many hours would it take to produce 650 zembles?

Are you to multiply or divide? _____
How many hours would
it take to produce 650 zembles? _____

2. If it takes 28 minutes to make one zomble, how many zombles could be made in 196 minutes?

Are you to multiply or divide? _____
How many zombles could
be made in 196 minutes? _____

3. There are 168 hours in one week. How many hours are in 260 weeks?

Are you to multiply or divide? _____
How many hours are
in 260 weeks? _____

4. There were 5,790 tickets sold to the game. There are 75 tickets in a block of tickets. How many complete blocks of tickets were sold? How many tickets were left over?

Are you to multiply or divide? _____
How many complete
blocks of tickets were sold? _____
How many tickets
were left over? _____

5. A satellite orbits the moon every 45 minutes. How many complete orbits could it make in 5,545 minutes? How many minutes would be left over?

Are you to multiply or divide? _____
How many complete
orbits could be made? _____
How many minutes
would be left over? _____

6. There are 10,080 minutes in a week. How many minutes are in 52 weeks?

Are you to multiply or divide? _____
How many minutes
are in 52 weeks? _____

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 14

My score: _____

NAME _____

TEST—Multiplication and Division

Multiply.

$$\begin{array}{r} a \\ 1. \quad 43 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 38 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 507 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 1351 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 7254 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 35 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 48 \\ \times 76 \\ \hline \end{array}$$

$$\begin{array}{r} 155 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 2056 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 3718 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 304 \\ \times 144 \\ \hline \end{array}$$

$$\begin{array}{r} 215 \\ \times 255 \\ \hline \end{array}$$

$$\begin{array}{r} 1403 \\ \times 304 \\ \hline \end{array}$$

$$\begin{array}{r} 5555 \\ \times 246 \\ \hline \end{array}$$

$$\begin{array}{r} 3182 \\ \times 354 \\ \hline \end{array}$$

Divide.

$$4. \quad 34 \overline{) 136}$$

$$12 \overline{) 420}$$

$$53 \overline{) 781}$$

$$37 \overline{) 4316}$$

$$29 \overline{) 1702}$$

$$5. \quad 74 \overline{) 9990}$$

$$46 \overline{) 1257}$$

$$38 \overline{) 38640}$$

$$14 \overline{) 53821}$$

$$63 \overline{) 27342}$$

Check your answers. Record your score.

Perfect score: 25 My score: _____

PRE-TEST—Multiplication

Express each product in simplest form.

a
1. $\frac{1}{2} \times \frac{3}{5}$

b
 $\frac{4}{7} \times \frac{4}{5}$

c
 $\frac{2}{3} \times \frac{5}{7}$

d
 $\frac{2}{5} \times \frac{2}{5}$

2. $\frac{3}{5} \times \frac{1}{6}$

$\frac{3}{8} \times \frac{5}{9}$

$\frac{6}{7} \times \frac{3}{8}$

$\frac{8}{9} \times \frac{3}{10}$

3. $3 \times \frac{2}{5}$

$5 \times \frac{8}{9}$

$6 \times \frac{3}{4}$

$\frac{8}{9} \times 3$

4. $4 \times 3\frac{1}{3}$

$2\frac{1}{2} \times 5$

$4 \times \frac{1}{6}$

$\frac{7}{8} \times 12$

5. $2\frac{1}{3} \times 1\frac{1}{4}$

$1\frac{7}{8} \times 1\frac{2}{7}$

$4\frac{2}{3} \times 1\frac{3}{7}$

$3\frac{1}{3} \times 2\frac{2}{5}$

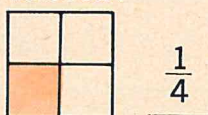
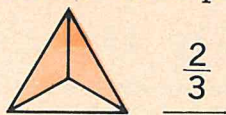
Check your answers. Record your score.

Perfect score: 20

My score: _____

Fractions

What fractional part of each figure is colored?



$\frac{2}{3}$ — numerator — number of parts (of the same size) being considered
 $\frac{2}{3}$ — denominator — total number of parts (each the same size)

The numerator of $\frac{1}{4}$ is ____.The denominator of $\frac{5}{6}$ is ____.

Write the fraction that tells how much of each figure is colored.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____

Draw a line segment between each fraction and number word that name the same number.

<i>a</i>		<i>b</i>	
3. one half	$\frac{4}{5}$	three eighths	$\frac{7}{9}$
4. two thirds	$\frac{3}{4}$	four sevenths	$\frac{3}{8}$
5. three fourths	$\frac{2}{3}$	three sevenths	$\frac{3}{7}$
6. four fifths	$\frac{1}{2}$	seven eighths	$\frac{4}{7}$
7. five sixths	$\frac{5}{6}$	seven ninths	$\frac{7}{8}$

Write a fraction for each of the following.

- | <i>a</i> | <i>b</i> |
|---------------------------------------|--------------------|
| 8. numerator 4, denominator 7 _____ | three fifths _____ |
| 9. numerator 5, denominator 8 _____ | two sevenths _____ |
| 10. denominator 10, numerator 9 _____ | four ninths _____ |

Check your answers. Record your score.

Perfect score: 24 My score: _____

Fractions

proper fractions

 $\frac{3}{4}, \frac{5}{8}, \frac{7}{9}$, and the like

improper fractions

$\frac{4}{3}$, $\frac{8}{5}$, $\frac{9}{7}$, $\frac{5}{5}$, and the like

mixed numerals

$1\frac{1}{3}$, $3\frac{4}{5}$, $2\frac{2}{7}$, and the like

$\frac{13}{4}$ means 13 \div 4.

$4 \overline{) 13} \quad 3 \text{ r } 1 \quad \text{or} \quad 3 \frac{1}{4}$

$$\frac{13}{4} = 3\frac{1}{4}$$

$\frac{14}{5}$ means _____ \div _____.

$$5 \overline{) 14} \quad \text{or} \quad \underline{\hspace{2cm}}$$

$$\frac{14}{5} = \underline{\hspace{2cm}}$$

Write P before each proper fraction, I before each improper fraction, and M before each mixed numeral.

a	b	c	d	e
1. $\frac{4}{7}$	$\frac{7}{3}$	$4\frac{2}{3}$	$\frac{6}{5}$	$3\frac{1}{6}$

2. $\frac{8}{8}$ $\frac{2}{3}$ $1\frac{5}{8}$ $\frac{5}{9}$ $2\frac{3}{5}$

3. $\frac{12}{3}$ $\frac{8}{11}$ $3\frac{8}{9}$ $\frac{9}{2}$ $\frac{7}{7}$

Rename each improper fraction as a mixed numeral.

	a	b	c
4.	$\frac{5}{2}$	$\frac{9}{5}$	$\frac{7}{2}$

$$5. \quad \frac{9}{4} \qquad \frac{6}{5} \qquad \frac{8}{3}$$

6. $\frac{14}{3}$ $\frac{10}{3}$ $\frac{17}{5}$

Complete the following.

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
7. $3\frac{1}{5} = 3 + \underline{\hspace{1cm}}$	$4\frac{1}{2} = \underline{\hspace{1cm}} + \frac{1}{2}$	$3\frac{3}{4} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$	$9 + \frac{1}{3} = \underline{\hspace{1cm}}$

8. $4\frac{2}{3} = 4 + \underline{\hspace{1cm}}$ $5\frac{3}{7} = \underline{\hspace{1cm}} + \frac{3}{7}$ $6\frac{2}{5} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$ $8 + \frac{7}{8} = \underline{\hspace{1cm}}$

9. $5\frac{1}{8} = 5 + \underline{\hspace{1cm}}$ $2\frac{1}{6} = \underline{\hspace{1cm}} + \frac{1}{6}$ $3\frac{1}{3} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$ $5 + \frac{3}{7} = \underline{\hspace{1cm}}$

Check your answers. Record your score.

Perfect score: 39 My score: _____

Addition

$$\frac{1}{5} + \frac{2}{5} = \frac{\text{sum of numerators}}{\text{the same denominator}} \quad \text{or} \quad \frac{1+2}{5} = \frac{3}{5}$$

$$\frac{2}{6} + \frac{3}{6} = \frac{2+3}{6} = \frac{5}{6}$$

$$\begin{array}{r} \frac{2}{6} \\ + \frac{3}{6} \\ \hline \frac{5}{6} \end{array}$$

$$\frac{3}{10} + \frac{4}{10} + \frac{2}{10} = \frac{\quad + \quad + \quad}{10} = \frac{9}{10}$$

$$\begin{array}{r} \frac{3}{10} \\ \frac{4}{10} \\ + \frac{2}{10} \\ \hline \end{array}$$

Add.

$$1. \quad \frac{3}{5} + \frac{1}{5}$$

$$\frac{4}{8} + \frac{3}{8}$$

$$\frac{2}{7} + \frac{2}{7}$$

$$\frac{1}{5} + \frac{2}{5} + \frac{1}{5}$$

$$2. \quad \frac{3}{6} + \frac{2}{6}$$

$$\frac{1}{7} + \frac{3}{7}$$

$$\frac{2}{8} + \frac{1}{8}$$

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$

$$3. \quad \frac{3}{10} + \frac{4}{10}$$

$$\frac{4}{12} + \frac{1}{12}$$

$$\frac{5}{11} + \frac{4}{11}$$

$$\frac{2}{15} + \frac{2}{15} + \frac{7}{15}$$

Add.

$$4. \quad \begin{array}{r} \frac{4}{6} \\ + \frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{8} \\ + \frac{4}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{1}{7} \\ + \frac{2}{7} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{10} \\ + \frac{6}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{12} \\ + \frac{4}{12} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{11} \\ + \frac{1}{11} \\ \hline \end{array}$$

$$5. \quad \begin{array}{r} \frac{1}{5} \\ \frac{1}{5} \\ + \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{7} \\ \frac{3}{7} \\ + \frac{1}{7} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{8} \\ \frac{1}{8} \\ + \frac{2}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{4}{10} \\ \frac{1}{10} \\ + \frac{2}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{15} \\ \frac{4}{15} \\ + \frac{4}{15} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{1}{12} \\ \frac{4}{12} \\ + \frac{2}{12} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 24

My score: _____

Renaming Numbers

Rename 4 as thirds.

Thinking steps

$$4 = \frac{4 \times 1}{1 \times 3} = \frac{4 \times 3}{1 \times 3} = \frac{12}{3}$$

Rename $4\frac{2}{3}$ as thirds.

Thinking steps

$$4\frac{2}{3} = \frac{(3 \times 4) + 2}{3} = \frac{12 + 2}{3} = \frac{14}{3}$$

Rename as directed.

a

1. Rename 3 as sixths.

b

Rename $3\frac{1}{6}$ as sixths.

c

Rename 2 as eighths.

d

Rename $2\frac{5}{8}$ as eighths.

2. Rename 2 as fifths.

Rename $2\frac{3}{5}$ as fifths.

Rename 8 as ninths.

Rename $8\frac{4}{9}$ as ninths.

3. Rename $2\frac{2}{5}$ as fifths.

Rename $6\frac{3}{8}$ as eighths.

Rename $3\frac{2}{3}$ as thirds.

Rename $4\frac{1}{3}$ as thirds.

4. Rename $3\frac{7}{10}$ as tenths.

Rename $5\frac{4}{11}$ as elevenths.

Rename $10\frac{2}{3}$ as thirds.

Rename $14\frac{1}{2}$ as halves.

5. Rename $6\frac{7}{8}$ as eighths.

Rename $5\frac{9}{10}$ as tenths.

Rename $15\frac{6}{7}$ as sevenths.

Rename $13\frac{5}{12}$ as twelfths.

Check your answers. Record your score.

Perfect score: 20

My score: _____

Multiplication

multiply numerators

$$\frac{2}{3} \times \frac{1}{5} = \frac{\overbrace{2 \times 1}}{\underbrace{3 \times 5}} = \frac{2}{15}$$

multiply denominators

$$\frac{1}{2} \times \frac{3}{4} = \frac{1 \times 3}{2 \times 4}$$

$$= \frac{\quad}{8}$$

$$\frac{2}{5} \times \frac{1}{3} = \frac{\times}{\times}$$

$$= \frac{\quad}{\quad}$$

Multiply.

a

1. $\frac{1}{2} \times \frac{1}{3}$

b

$\frac{3}{4} \times \frac{1}{2}$

c

$\frac{1}{3} \times \frac{1}{4}$

d

$\frac{3}{5} \times \frac{1}{2}$

2. $\frac{3}{5} \times \frac{3}{4}$

$\frac{4}{7} \times \frac{3}{5}$

$\frac{4}{5} \times \frac{2}{3}$

$\frac{3}{8} \times \frac{5}{7}$

3. $\frac{2}{3} \times \frac{4}{5}$

$\frac{1}{8} \times \frac{1}{2}$

$\frac{5}{7} \times \frac{3}{4}$

$\frac{3}{5} \times \frac{7}{8}$

4. $\frac{6}{7} \times \frac{3}{5}$

$\frac{2}{9} \times \frac{1}{3}$

$\frac{5}{8} \times \frac{3}{7}$

$\frac{2}{7} \times \frac{3}{5}$

5. $\frac{7}{8} \times \frac{7}{8}$

$\frac{2}{3} \times \frac{2}{3}$

$\frac{4}{9} \times \frac{2}{3}$

$\frac{4}{5} \times \frac{6}{7}$

6. $\frac{8}{9} \times \frac{5}{7}$

$\frac{5}{8} \times \frac{1}{3}$

$\frac{5}{6} \times \frac{5}{7}$

$\frac{3}{8} \times \frac{5}{8}$

Check your answers. Record your score.

Perfect score: 24

My score: _____

Renaming Numbers

Rename $\frac{1}{2}$ as sixths.

$$\begin{aligned}\frac{1}{2} &= \frac{1}{2} \times 1 \\ &= \frac{1}{2} \times \frac{3}{3} \\ &= \frac{1 \times 3}{2 \times 3} \\ &= \frac{3}{6}\end{aligned}$$

Rename $\frac{2}{3}$ as fifteenths.

$$\begin{aligned}\frac{2}{3} &= \frac{2}{3} \times 1 \\ &= \frac{2}{3} \times \frac{5}{5} \\ &= \frac{2 \times 5}{3 \times 5} \\ &= \frac{10}{15}\end{aligned}$$

To rename $\frac{1}{2}$ as sixths, multiply $\frac{1}{2}$ by 1. Use 1 in the form ____.

To rename $\frac{2}{3}$ as fifteenths, multiply $\frac{2}{3}$ by 1. Use 1 in the form ____.

Rename as directed.

a

1. Rename $\frac{2}{3}$ as sixths.

b

- Rename $\frac{4}{5}$ as tenths.

c

- Rename $\frac{3}{4}$ as twelfths.

d

- Rename $\frac{1}{6}$ as eighteenths.

2. Rename $\frac{1}{4}$ as sixteenths.

- Rename $\frac{5}{6}$ as twelfths.

- Rename $\frac{1}{3}$ as fifteenths.

- Rename $\frac{1}{2}$ as sixteenths.

3. Rename $\frac{3}{5}$ as twentieths.

- Rename $\frac{2}{5}$ as twentieths.

- Rename $\frac{2}{7}$ as twenty firsts.

- Rename $\frac{4}{9}$ as thirty sixths.

Check your answers. Record your score.

Perfect score: 12

My score: _____

NAME _____

Greatest Common Factor

12 $\begin{cases} 1 \times 12 \\ 2 \times 6 \\ 3 \times 4 \end{cases}$ 1, 2, 3, 4, 6, and 12 are factors of 12.

30 $\begin{cases} 1 \times 30 \\ 2 \times 15 \\ 3 \times 10 \\ 5 \times 6 \end{cases}$ 1, 2, 3, 5, 6, _____, _____, and _____ are factors of 30.

1, 2, 3, and 6 are **common factors** of 12 and 30.

6 is the **greatest common factor** of 12 and 30.

List the factors of each number named below. Then list the common factors and the greatest common factor of each pair of numbers.

	<i>factors</i>	<i>common factor(s)</i>	<i>greatest common factor</i>
1. 6	_____		
10	_____	_____	_____
2. 5	_____		
8	_____	_____	_____
3. 12	_____		
15	_____	_____	_____
4. 10	_____		
20	_____	_____	_____
5. 14	_____		
16	_____	_____	_____
6. 15	_____		
7	_____	_____	_____
7. 24	_____		
18	_____	_____	_____

Check your answers. Record your score.

Perfect score: 28

My score: _____

Renaming Fractions and Mixed Numerals in Simplest Form

A fraction is in simplest form when its numerator and denominator have no common factors, except 1.

Divide 12 and 15 by their greatest common factor.

$$\frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$

The simplest form for $\frac{12}{15}$ is $\frac{4}{5}$.

A mixed numeral is in simplest form when its fraction is in simplest form and names a number less than 1.

Divide 4 and 6 by their greatest common factor.

$$\begin{aligned} 3\frac{4}{6} &= 3 + \frac{4}{6} \\ &= 3 + \frac{2}{3} \\ &= 3\frac{2}{3} \end{aligned}$$

$$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$

The simplest form for $3\frac{4}{6}$ is _____.

Express each of the following in simplest form.

1. $\frac{8}{10}$

$\frac{10}{20}$

$\frac{14}{21}$

2. $2\frac{4}{8}$

$3\frac{6}{9}$

$5\frac{8}{10}$

3. $\frac{12}{18}$

$5\frac{9}{12}$

$\frac{15}{18}$

4. $6\frac{8}{12}$

$\frac{25}{30}$

$3\frac{12}{16}$

5. $\frac{24}{30}$

$3\frac{14}{18}$

$\frac{16}{32}$

Check your answers. Record your score.

Perfect score: 15

My score: _____

Multiplication

NAME _____

$$\frac{1}{2} \times \frac{3}{4} = \frac{1 \times 3}{2 \times 4} = \frac{3}{8}$$

Is $\frac{3}{8}$ in simplest form? _____

$$\begin{aligned} \frac{4}{5} \times \frac{1}{6} &= \frac{4 \times 1}{5 \times 6} \\ &= \frac{4}{30} \xrightarrow{\text{4}} \frac{4}{30} = \frac{4 \div 2}{30 \div 2} \\ &= \frac{2}{15} \xleftarrow{\text{2}} \frac{2}{15} \end{aligned}$$

Is $\frac{4}{30}$ in simplest form? _____

Is $\frac{2}{15}$ in simplest form? _____

Express each product in simplest form.

a

1. $\frac{1}{2} \times \frac{3}{5}$

b

$\frac{2}{3} \times \frac{4}{5}$

c

$\frac{2}{3} \times \frac{2}{3}$

d

$\frac{5}{6} \times \frac{1}{7}$

2. $\frac{3}{4} \times \frac{4}{5}$

$\frac{5}{6} \times \frac{2}{3}$

$\frac{6}{7} \times \frac{2}{3}$

$\frac{3}{5} \times \frac{4}{9}$

3. $\frac{5}{6} \times \frac{2}{5}$

$\frac{4}{5} \times \frac{5}{6}$

$\frac{3}{8} \times \frac{2}{3}$

$\frac{2}{15} \times \frac{5}{6}$

4. $\frac{6}{5} \times \frac{3}{8}$

$\frac{9}{10} \times \frac{5}{12}$

$\frac{8}{21} \times \frac{3}{10}$

$\frac{8}{15} \times \frac{9}{10}$

5. $\frac{4}{7} \times \frac{5}{6}$

$\frac{3}{8} \times \frac{7}{10}$

$\frac{9}{10} \times \frac{5}{9}$

$\frac{6}{7} \times \frac{9}{14}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Solve. Express each answer in simplest form.

1. Mrs. Urbasek had $\frac{3}{4}$ gallon of milk. One half of this was used for dinner. What fractional part of a gallon was used for dinner? ($\frac{1}{2}$ of $\frac{3}{4} = \frac{1}{2} \times \frac{3}{4}$)

_____ gallon was used for dinner.

2. Marsha read $\frac{4}{5}$ of a book. Two thirds of that reading was done at school. What fractional part of the book did she read at school?

She read _____ of the book at school.

3. Six sevenths of a class are girls. Two thirds of the girls are present today. The girls who are present are what fractional part of the class?

_____ of all the pupils are girls in class today.

4. Three fourths of a room has been painted. Joe did $\frac{2}{9}$ of the painting. What fractional part of the room did Joe paint?

Joe painted _____ of the room.

5. Two thirds of the morning session is completed. One third of that time was spent studying English. What fractional part of the morning session was spent studying English?

_____ of the session was spent studying English.

6. Three fifths of an order is filled. Miss Graham prepared $\frac{5}{6}$ of this amount. What fractional part of the order did she prepare?

Miss Graham prepared _____ of the order.

7. Mother served $\frac{5}{8}$ of a pie at dinner. Four fifths of this amount was eaten then. What fractional part of the whole pie was eaten at dinner?

_____ of the whole pie was eaten.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 7

My score: _____

Multiplication

$$\begin{aligned}
 4 \times \frac{5}{6} &= \frac{4}{1} \times \frac{5}{6} \\
 &= \frac{4 \times 5}{1 \times 6} \\
 &= \frac{20}{6} \\
 &= \frac{10}{3} \\
 &= 3\frac{1}{3}
 \end{aligned}$$

4 is renamed as _____.

 $\frac{20}{6}$ is renamed as _____. $\frac{10}{3}$ is changed to _____.

$$\begin{aligned}
 4\frac{2}{3} \times 5 &= \frac{14}{3} \times \frac{5}{1} \\
 &= \frac{14 \times 5}{3 \times 1} \\
 &= \frac{70}{3} \\
 &= 23\frac{1}{3}
 \end{aligned}$$

 $4\frac{2}{3}$ is renamed as _____.

5 is renamed as _____.

 $\frac{70}{3}$ is changed to _____.

Express each product in simplest form.

a

1. $5 \times \frac{2}{3}$

b

$6 \times \frac{4}{5}$

c

$\frac{1}{2} \times 9$

d

$\frac{3}{4} \times 7$

2. $9 \times \frac{5}{6}$

$\frac{1}{4} \times 6$

$\frac{3}{8} \times 12$

$10 \times \frac{4}{5}$

3. $2\frac{1}{2} \times 3$

$1\frac{1}{3} \times 5$

$2 \times 3\frac{2}{5}$

$4 \times 4\frac{2}{3}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. A can of fruit weighs $\frac{2}{3}$ pound. How many pounds would 3 cans of fruit weigh?

Three cans of fruit would weigh _____ pounds.

2. The plumber expects a job to take him 10 hours. He has already worked $\frac{5}{6}$ of that time. How many hours has the plumber worked?

The plumber has worked _____ hours.

3. Each book is $\frac{7}{8}$ inch thick. How many inches high would a stack of 12 such books be?

The stack would be _____ inches high.

4. The carpenters stacked 15 sheets of wall board on top of each other. Each sheet is $\frac{5}{8}$ inch thick. How high is the stack?

The stack is _____ inches high.

5. Mark, Helen, Eileen, and Paul each practiced the piano for $\frac{3}{4}$ hour. How many hours of practice was this?

It was _____ hours of practice.

6. Each class period lasts $\frac{5}{6}$ hour. How many hours are there in 9 class periods?

There are _____ hours in 9 class periods.

7. Twenty-four pupils are in Mr. Roberts' class. Suppose $\frac{2}{3}$ of his class are girls. How many of his pupils are girls? How many are boys?

_____ of his pupils are girls.

_____ of his pupils are boys.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Multiplication

$$\begin{aligned}
 2\frac{3}{5} \times 1\frac{1}{6} &= \frac{13}{5} \times \frac{7}{6} \\
 &= \frac{13 \times 7}{5 \times 6} \\
 &= \frac{91}{30} \\
 &= 3\frac{1}{30}
 \end{aligned}$$

$2\frac{3}{5}$ is renamed as _____. $1\frac{1}{6}$ is renamed as _____.

$\frac{91}{30}$ is changed to a mixed numeral as _____.

Express each product as a mixed numeral in simplest form.

a

1. $4\frac{2}{3} \times 1\frac{2}{5}$

b

$3\frac{1}{2} \times 1\frac{1}{6}$

c

$1\frac{2}{3} \times 2\frac{1}{2}$

d

$2\frac{2}{3} \times 2\frac{2}{3}$

2. $2\frac{2}{5} \times 2\frac{1}{4}$

$1\frac{7}{10} \times 2\frac{1}{2}$

$5\frac{1}{3} \times 1\frac{1}{5}$

$2\frac{4}{5} \times 1\frac{1}{7}$

3. $3\frac{3}{4} \times 2\frac{1}{3}$

$3\frac{2}{5} \times 1\frac{7}{8}$

$4\frac{2}{3} \times 1\frac{1}{8}$

$3\frac{3}{4} \times 3\frac{1}{3}$

4. $5\frac{1}{6} \times 6\frac{3}{8}$

$2\frac{3}{5} \times 2\frac{1}{2}$

$1\frac{1}{4} \times 1\frac{1}{4}$

$3\frac{1}{8} \times 6\frac{2}{3}$

Check your answers. Record your score.

Perfect score: 16

My score: _____

Problems

Solve. Express each answer in simplest form.

1. A full box of soap weighs $2\frac{2}{3}$ pounds. How many pounds would $1\frac{1}{3}$ boxes of soap weigh?

They would weigh _____ pounds.

2. It takes $1\frac{4}{5}$ hours to process 1 ton of ore. How many hours would it take to process $3\frac{1}{3}$ tons of ore?

It would take _____ hours.

3. Each box of bolts weighs $3\frac{3}{4}$ pounds. How many pounds would $8\frac{1}{2}$ boxes of bolts weigh?

They would weigh _____ pounds.

4. The boys can walk $3\frac{1}{2}$ miles in 1 hour. At that rate, how many miles could the boys walk in $1\frac{1}{6}$ hours?

The boys could walk _____ miles.

5. Each box of candy weighs $4\frac{1}{2}$ pounds. How much would $3\frac{1}{8}$ boxes of candy weigh?

They would weigh _____ pounds.

6. Trudy is paid $1\frac{1}{2}$ dollars an hour. She has worked $2\frac{1}{4}$ hours. How much should she be paid?

She should be paid _____ dollars.

7. In problem 6, suppose Trudy is paid $1\frac{3}{4}$ dollars an hour. How much should she be paid?

She should be paid _____ dollars.

8. A machine can process $2\frac{1}{2}$ tons in 1 hour. How many tons can the machine process in $2\frac{1}{10}$ hours?

The machine can process _____ tons in $2\frac{1}{10}$ hours.

9. If the machine in problem 8 broke down after $1\frac{1}{2}$ hours, how many tons would have been processed?

_____ tons would have been processed.

1.

2.

3.

4.

5.

6.

7.

8.

9.

Check your answers. Record your score.

Perfect score: 9

My score: _____

NAME _____

TEST—Multiplication

Express each product in simplest form.

a

1. $\frac{1}{2} \times \frac{5}{6}$

b

$\frac{7}{8} \times \frac{5}{6}$

c

$\frac{2}{3} \times \frac{5}{7}$

d

$\frac{3}{8} \times \frac{3}{8}$

2. $\frac{5}{9} \times \frac{6}{7}$

$\frac{7}{10} \times \frac{8}{9}$

$\frac{9}{10} \times \frac{5}{6}$

$\frac{5}{8} \times \frac{4}{5}$

3. $2 \times \frac{3}{5}$

$6 \times \frac{5}{7}$

$\frac{1}{2} \times 8$

$\frac{5}{6} \times 8$

4. $4 \times 3\frac{1}{3}$

$\frac{4}{5} \times 2$

$10 \times \frac{4}{5}$

$\frac{3}{8} \times 10$

5. $3\frac{1}{3} \times 1\frac{1}{7}$

$1\frac{4}{5} \times 3\frac{1}{2}$

$2\frac{2}{3} \times 1\frac{1}{10}$

$2\frac{4}{5} \times 4\frac{1}{6}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

PRE-TEST—Addition and Subtraction

Express each sum or difference in simplest form.

$$\begin{array}{r} a \\ 1. \quad \frac{3}{7} \\ + \frac{1}{7} \\ \hline \end{array}$$

$$\begin{array}{r} b \\ \frac{4}{9} \\ + \frac{2}{9} \\ \hline \end{array}$$

$$\begin{array}{r} c \\ \frac{7}{8} \\ - \frac{2}{8} \\ \hline \end{array}$$

$$\begin{array}{r} d \\ \frac{9}{10} \\ - \frac{3}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \frac{2}{3} \\ + \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{4}{6} \\ + \frac{7}{12} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{5}{6} \\ - \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{10} \\ - \frac{5}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 3 \\ - \frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ - \frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \frac{3}{5} \\ + \frac{5}{6} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{1}{2} \\ 3 \\ + \frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 2\frac{3}{4} \\ + \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{10} \\ + 3\frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{4}{9} \\ - \frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 2\frac{7}{12} \\ - \frac{5}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 5\frac{4}{9} \\ - 3\frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 7\frac{2}{5} \\ - 2\frac{9}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 2\frac{1}{2} \\ 4\frac{1}{3} \\ + 3\frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 4\frac{1}{2} \\ \frac{5}{6} \\ + 3\frac{2}{3} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Addition and Subtraction

$$\begin{array}{r} \frac{7}{8} \\ + \frac{5}{8} \\ \hline \frac{12}{8} = 1\frac{4}{8} = 1\frac{1}{2} \end{array}$$

$$\begin{array}{r} \frac{7}{8} + \frac{5}{8} = \frac{\quad}{8} \\ = \frac{\quad}{8} \\ = 1\frac{\quad}{8} \\ = 1\frac{\quad}{2} \end{array}$$

$$\begin{array}{r} \frac{5}{6} \\ - \frac{1}{6} \\ \hline \frac{4}{6} = \frac{2}{3} \end{array}$$

$$\begin{array}{r} \frac{5}{6} - \frac{1}{6} = \frac{\quad}{6} \\ = \frac{\quad}{6} \\ = \frac{\quad}{3} \end{array}$$

Express each sum or difference in simplest form.

a

$$\begin{array}{r} 1. \quad \frac{1}{5} \\ + \frac{2}{5} \\ \hline \end{array}$$

b

$$\begin{array}{r} \frac{4}{7} \\ + \frac{2}{7} \\ \hline \end{array}$$

c

$$\begin{array}{r} \frac{3}{4} \\ + \frac{2}{4} \\ \hline \end{array}$$

d

$$\begin{array}{r} \frac{5}{6} \\ + \frac{4}{6} \\ \hline \end{array}$$

e

$$\begin{array}{r} \frac{7}{8} \\ + \frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \frac{5}{6} \\ - \frac{4}{6} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{8} \\ - \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{5}{7} \\ - \frac{2}{7} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{9} \\ - \frac{4}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{5}{8} \\ - \frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \frac{3}{10} \\ + \frac{6}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{8}{9} \\ + \frac{4}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{8} \\ + \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{5}{12} \\ + \frac{5}{12} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{10}{15} \\ + \frac{14}{15} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \frac{11}{12} \\ - \frac{3}{12} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{8} \\ - \frac{2}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{8}{9} \\ - \frac{5}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{10} \\ - \frac{4}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{16} \\ - \frac{3}{16} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad \frac{7}{12} \\ + \frac{8}{12} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{5}{9} \\ - \frac{2}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{8}{15} \\ + \frac{10}{15} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{10} \\ - \frac{3}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{6}{14} \\ + \frac{6}{14} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 25

My score: _____

Problems

Solve. Express each answer in simplest form.

1. Walter drank $\frac{1}{4}$ gallon of milk yesterday and $\frac{1}{4}$ gallon of milk today. What part of a gallon of milk did he drink during these two days?

He drank _____ gallon of milk.

2. Trina and Trudy have painted $\frac{6}{7}$ of a room. Trudy painted $\frac{3}{7}$ of the room. What part of the room did Trina paint?

Trina painted _____ of the room.

3. Tom measured two boards. He found that each was $\frac{3}{8}$ inch thick. What would be the total thickness of the boards if he glues them together?

The total thickness would be _____ inch.

4. An unopened box of cereal weighed $\frac{15}{16}$ pound. Mother used $\frac{5}{16}$ pound of cereal from the box. How much cereal remains in the box?

_____ pound remains in the box.

5. A class period has just begun and will last $\frac{5}{6}$ hour. After $\frac{4}{6}$ hour, what fractional part of an hour remains in the period?

_____ hour remains in the period.

6. Helen practiced the guitar $\frac{7}{10}$ hour in the morning and $\frac{8}{10}$ hour in the afternoon. How long did Helen practice the guitar?

She practiced _____ hours.

7. Jerry spent $\frac{10}{12}$ hour studying spelling and $\frac{5}{12}$ hour studying history. How much time did he spend studying spelling and history?

He spent _____ hours studying.

8. In problem 7, how much longer did he spend studying spelling than studying history?

He spent _____ hour more studying spelling.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Prime Factors

A **prime number** is any whole number that is greater than 1 and has only itself and 1 as factors.

$$2 = 2 \times 1$$

$$4 = 4 \times 1 = 2 \times 2$$

$$6 = 6 \times 1 = 2 \times 3$$

$$8 = 8 \times 1 = 4 \times 2 = 2 \times 2 \times 2$$

$$3 = 3 \times 1$$

$$5 = 5 \times 1$$

$$7 = 7 \times 1$$

$$9 = 9 \times 1 = 3 \times 3$$

The first six prime numbers are 2, 3, _____, _____, 11, and _____.

You can use any of the following ways to express 30 as a product of **prime factors**.

$$30 = 2 \times 15$$

$$30 = 3 \times 10$$

$$30 = 5 \times 6$$

$$= 2 \times 3 \times 5$$

$$= 3 \times 2 \times 5$$

$$= 5 \times 2 \times 3$$

The prime factors of 30 are 2, 3, and 5.

Express each of the following as a product of prime factors.

a

b

c

1. 8

9

6

2. 18

10

12

3. 25

21

28

4. 36

35

30

5. 45

42

49

6. 50

56

51

Check your answers. Record your score.

Perfect score: 18

My score: _____

Least Common Denominator

To find the least common denominator of $\frac{1}{6}$, $\frac{5}{24}$, and $\frac{9}{10}$:

Express each denominator as a product of prime factors.

$$\begin{aligned}6 &= 2 \times 3 \\ 24 &= 2 \times 2 \times 2 \times 3 \\ 10 &= 2 \times 5\end{aligned}$$

Note the different numbers used as factors in any of the products.

2, 3, and 5

Use each of these factors the greatest number of times it occurs in any of the products.

$$2 \times 2 \times 2 \times 3 \times 5 = 120$$

The least common denominator of $\frac{1}{6}$, $\frac{5}{24}$, and $\frac{9}{10}$ is _____.

Find the least common denominator of each of the following.

a

1. $\frac{1}{6}$ and $\frac{5}{8}$

b

$\frac{3}{4}$ and $\frac{5}{6}$

c

$\frac{7}{9}$ and $\frac{1}{6}$

2. $\frac{3}{4}$ and $\frac{1}{2}$

$\frac{3}{8}$ and $\frac{1}{2}$

$\frac{2}{3}$ and $\frac{7}{9}$

3. $\frac{4}{5}$ and $\frac{1}{3}$

$\frac{2}{7}$ and $\frac{1}{2}$

$\frac{3}{4}$ and $\frac{2}{5}$

4. $\frac{5}{9}$ and $\frac{5}{12}$

$\frac{9}{14}$ and $\frac{5}{6}$

$\frac{7}{15}$ and $\frac{2}{3}$

5. $\frac{1}{6}$, $\frac{9}{10}$, and $\frac{7}{8}$

$\frac{2}{5}$, $\frac{3}{4}$, and $\frac{1}{3}$

$\frac{1}{2}$, $\frac{7}{10}$, and $\frac{3}{5}$

6. $\frac{2}{3}$, $\frac{5}{12}$, and $\frac{1}{10}$

$\frac{3}{14}$, $\frac{6}{7}$, and $\frac{5}{12}$

$\frac{5}{18}$, $\frac{7}{24}$, and $\frac{5}{6}$

Check your answers. Record your score.

Perfect score: 18

My score: _____

Addition and Subtraction

To add or subtract fractional numbers, first rename the numbers so they have the least common denominator. Then proceed as you do with numbers that have a common denominator.

$$\begin{array}{r} \frac{5}{6} \\ + \frac{3}{4} \\ \hline \end{array} \quad \begin{array}{c} \xrightarrow{\hspace{1cm}} \\ \xrightarrow{\hspace{1cm}} \end{array} \quad \begin{array}{r} \frac{10}{12} \\ + \frac{9}{12} \\ \hline \frac{19}{12} = 1\frac{7}{12} \end{array}$$

The least common denominator of $\frac{5}{6}$ and $\frac{3}{4}$ is _____.

$\frac{5}{6}$ is renamed as _____.

$\frac{3}{4}$ is renamed as _____.

$$\frac{5}{6} + \frac{3}{4} = \underline{\hspace{2cm}}$$

$$\begin{array}{r} \frac{9}{10} \\ - \frac{1}{2} \\ \hline \end{array} \quad \begin{array}{c} \xrightarrow{\hspace{1cm}} \\ \xrightarrow{\hspace{1cm}} \end{array} \quad \begin{array}{r} \frac{9}{10} \\ - \frac{5}{10} \\ \hline \frac{4}{10} = \frac{2}{5} \end{array}$$

The least common denominator of $\frac{9}{10}$ and $\frac{1}{2}$ is _____.

$\frac{1}{2}$ is renamed as _____.

$$\frac{9}{10} - \frac{1}{2} = \underline{\hspace{2cm}}$$

Express each sum or difference in simplest form.

a

$$1. \quad \begin{array}{r} \frac{2}{5} \\ + \frac{1}{2} \\ \hline \end{array}$$

b

$$\begin{array}{r} \frac{2}{7} \\ + \frac{1}{3} \\ \hline \end{array}$$

c

$$\begin{array}{r} \frac{3}{4} \\ + \frac{1}{2} \\ \hline \end{array}$$

d

$$\begin{array}{r} \frac{7}{8} \\ + \frac{1}{4} \\ \hline \end{array}$$

2. $\begin{array}{r} \frac{2}{3} \\ - \frac{1}{4} \\ \hline \end{array}$

$\begin{array}{r} \frac{3}{5} \\ - \frac{1}{2} \\ \hline \end{array}$

$\begin{array}{r} \frac{2}{3} \\ - \frac{1}{6} \\ \hline \end{array}$

$\begin{array}{r} \frac{1}{2} \\ - \frac{3}{10} \\ \hline \end{array}$

3. $\begin{array}{r} \frac{9}{10} \\ + \frac{7}{8} \\ \hline \end{array}$

$\begin{array}{r} \frac{5}{6} \\ - \frac{3}{4} \\ \hline \end{array}$

$\begin{array}{r} \frac{5}{6} \\ + \frac{4}{9} \\ \hline \end{array}$

$\begin{array}{r} \frac{7}{10} \\ - \frac{1}{6} \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. A record has been playing for $\frac{1}{3}$ hour. The record still has $\frac{1}{12}$ hour to play. What is the total length of time the record can play?

The record can play _____ hour.

2. Billy has $\frac{3}{4}$ pound of candy and Sally has $\frac{2}{3}$ pound. How much more candy does Billy have than Sally?

Billy has _____ pound more.

3. It took Jim $\frac{9}{10}$ hour to do his homework. It took Tim $\frac{5}{6}$ hour to do his homework. What was the total amount of time both boys spent doing their homework?

Both boys spent _____ hours doing homework.

4. Bob has a board that is $\frac{1}{8}$ inch too wide. The board is $\frac{3}{4}$ inch wide. What width board does Bob need?

Bob needs a board _____ inch wide.

5. Shirley read $\frac{3}{5}$ hour in the morning and $\frac{1}{2}$ hour in the afternoon. How many hours did she read in the morning and afternoon?

She read _____ hours.

6. In problem 5, how much longer did she read in the morning than in the afternoon?

She read _____ hour longer in the morning.

7. John has two boxes. One weighs $\frac{3}{10}$ pound and the other weighs $\frac{7}{8}$ pound. What is the combined weight of both boxes?

The combined weight is _____ pounds.

8. In problem 7, how much more does the heavier box weigh?

The heavier box weighs _____ pound more.

Check your answers. Record your score.

Perfect score: 8

My score: _____

1.

2.

3.

4.

5.

6.

7.

8.

Addition and Subtraction

$$\begin{array}{r}
 3 \\
 \frac{1}{2} \\
 + \frac{2}{3} \\
 \hline
 \end{array}
 \begin{array}{l}
 \longrightarrow \\
 \longrightarrow \\
 \longrightarrow
 \end{array}
 \begin{array}{r}
 3 \\
 \frac{3}{6} \\
 + \frac{4}{6} \\
 \hline
 3\frac{7}{6} = 4\frac{1}{6}
 \end{array}$$

The least common denominator of $\frac{1}{2}$ and $\frac{2}{3}$ is ____.

$$3 + \frac{1}{2} + \frac{2}{3} = \underline{\hspace{2cm}}$$

$$\begin{array}{r}
 6 \\
 - \frac{3}{4} \\
 \hline
 \end{array}
 \begin{array}{l}
 \longrightarrow \\
 \longrightarrow
 \end{array}
 \begin{array}{r}
 5\frac{4}{4} \\
 - \frac{3}{4} \\
 \hline
 5\frac{1}{4}
 \end{array}$$

6 is renamed as ____.

$$6 - \frac{3}{4} = \underline{\hspace{2cm}}$$

Express each sum or difference in simplest form.

a

$$\begin{array}{r}
 1. \quad 4 \\
 \frac{2}{5} \\
 + \frac{1}{3} \\
 \hline
 \end{array}$$

b

$$\begin{array}{r}
 \frac{5}{6} \\
 3 \\
 + \frac{3}{8} \\
 \hline
 \end{array}$$

c

$$\begin{array}{r}
 \frac{2}{3} \\
 \frac{5}{9} \\
 + 2 \\
 \hline
 \end{array}$$

d

$$\begin{array}{r}
 \frac{3}{8} \\
 4 \\
 + \frac{3}{10} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2. \quad 5 \\
 - \frac{2}{3} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3 \\
 - \frac{7}{8} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4 \\
 - \frac{5}{7} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1 \\
 - \frac{7}{9} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3. \quad 3\frac{2}{3} \\
 \frac{1}{4} \\
 + 2 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \frac{3}{10} \\
 \frac{5}{6} \\
 + 2 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4\frac{5}{12} \\
 2 \\
 + \frac{3}{8} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \frac{1}{9} \\
 \frac{7}{12} \\
 + 4 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4. \quad 7 \\
 - \frac{1}{6} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1 \\
 - \frac{5}{12} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 8 \\
 - \frac{3}{10} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 10 \\
 - \frac{7}{15} \\
 \hline
 \end{array}$$

Check your answers. Record your score.

Perfect score: 16

My score: _____

Addition and Subtraction

$$\begin{array}{r} 1\frac{1}{2} \longrightarrow 1\frac{6}{12} \\ 3\frac{3}{4} \longrightarrow 3\frac{9}{12} \\ + \frac{2}{3} \longrightarrow + \frac{8}{12} \\ \hline 4\frac{23}{12} = 5\frac{11}{12} \end{array}$$

The least common denominator of $\frac{1}{2}$, $\frac{3}{4}$, and $\frac{2}{3}$ is _____.

$$1\frac{1}{2} + 3\frac{3}{4} + \frac{2}{3} = \underline{\hspace{2cm}}$$

$$\begin{array}{r} 4\frac{1}{2} \longrightarrow 4\frac{5}{10} \longrightarrow 3\frac{15}{10} \\ - 1\frac{3}{5} \longrightarrow - 1\frac{6}{10} \longrightarrow - 1\frac{6}{10} \\ \hline 2\frac{9}{10} \end{array}$$

Can you subtract $\frac{6}{10}$ from $\frac{5}{10}$? _____

$4\frac{5}{10}$ is renamed as _____.

Can you subtract $\frac{6}{10}$ from $\frac{15}{10}$? _____

$$4\frac{1}{2} - 1\frac{3}{5} = \underline{\hspace{2cm}}$$

Express each sum or difference in simplest form.

a

$$1. \quad \begin{array}{r} 3\frac{1}{4} \\ + 2\frac{4}{5} \\ \hline \end{array}$$

b

$$\begin{array}{r} 3\frac{1}{6} \\ + \frac{3}{4} \\ \hline \end{array}$$

c

$$\begin{array}{r} \frac{3}{5} \\ 1\frac{2}{3} \\ + 2\frac{1}{2} \\ \hline \end{array}$$

d

$$\begin{array}{r} 3\frac{5}{8} \\ 2\frac{1}{6} \\ + \frac{5}{12} \\ \hline \end{array}$$

$$2. \quad \begin{array}{r} 3\frac{4}{5} \\ - 1\frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{2}{3} \\ - 3\frac{4}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 6\frac{3}{8} \\ - 2\frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{1}{6} \\ - 2\frac{5}{8} \\ \hline \end{array}$$

$$3. \quad \begin{array}{r} 3\frac{1}{8} \\ - 2\frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{8}{9} \\ - 3\frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{5} \\ + 2\frac{5}{6} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{10} \\ + 3\frac{5}{12} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Addition and Subtraction

Express each sum or difference in simplest form.

- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|---|---|---|--|
| 1. | $\begin{array}{r} \frac{7}{8} \\ + \frac{5}{8} \\ \hline \end{array}$ | $\begin{array}{r} \frac{9}{16} \\ - \frac{3}{16} \\ \hline \end{array}$ | $\begin{array}{r} \frac{13}{15} \\ + \frac{12}{15} \\ \hline \end{array}$ | $\begin{array}{r} \frac{11}{12} \\ - \frac{3}{12} \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} \frac{8}{9} \\ + \frac{7}{8} \\ \hline \end{array}$ | $\begin{array}{r} \frac{6}{7} \\ - \frac{2}{3} \\ \hline \end{array}$ | $\begin{array}{r} \frac{4}{9} \\ + \frac{5}{6} \\ \hline \end{array}$ | $\begin{array}{r} \frac{3}{4} \\ - \frac{5}{12} \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 9 \\ - \frac{5}{9} \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ - \frac{3}{10} \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \frac{3}{8} \\ + \frac{3}{4} \\ \hline \end{array}$ | $\begin{array}{r} \frac{7}{12} \\ \frac{2}{9} \\ + 7 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} \frac{2}{3} \\ + 3\frac{4}{5} \\ \hline \end{array}$ | $\begin{array}{r} 7\frac{3}{8} \\ - \frac{5}{7} \\ \hline \end{array}$ | $\begin{array}{r} 6\frac{1}{10} \\ + \frac{5}{12} \\ \hline \end{array}$ | $\begin{array}{r} 1\frac{2}{5} \\ - \frac{7}{10} \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 14\frac{7}{15} \\ - 3\frac{11}{12} \\ \hline \end{array}$ | $\begin{array}{r} 16\frac{9}{14} \\ - 2\frac{3}{7} \\ \hline \end{array}$ | $\begin{array}{r} 3\frac{2}{3} \\ 2\frac{1}{5} \\ + 4\frac{3}{8} \\ \hline \end{array}$ | $\begin{array}{r} 2\frac{5}{6} \\ 3\frac{1}{5} \\ + 2\frac{4}{15} \\ \hline \end{array}$ |

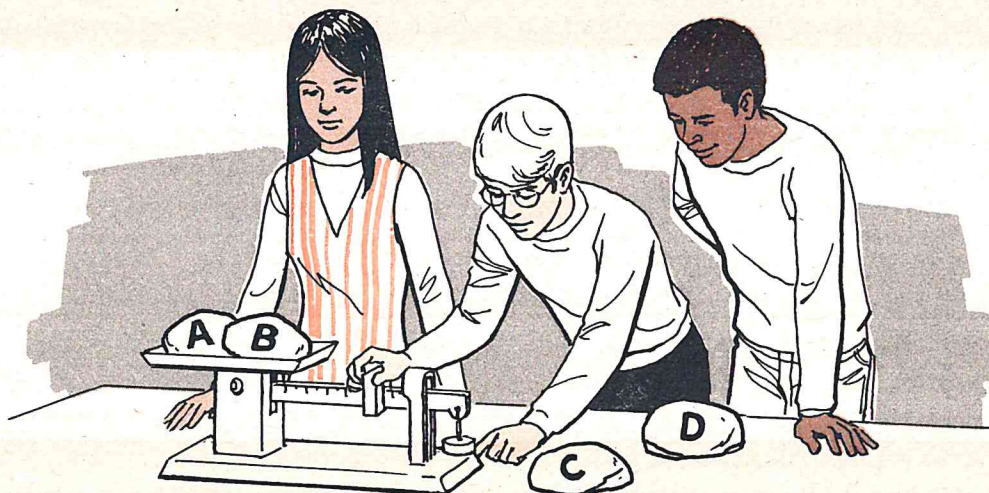
Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Rock	Weight
A	$\frac{7}{8}$ pound
B	$1\frac{1}{4}$ pounds
C	3 pounds
D	$2\frac{7}{10}$ pounds



Solve. Express each answer in simplest form.

1. The pupils put rocks A and B on the scales. What is the combined weight of both rocks?

The combined weight is _____ pounds.

2. How much more does rock B weigh than rock A?

Rock B weighs _____ pound more.

3. What is the combined weight of rocks B and C?

The combined weight is _____ pounds.

4. Considering rocks A and C, how much more does the heavier rock weigh?

The heavier rock weighs _____ pounds more.

5. What is the combined weight of rocks A, B, and C?

The combined weight is _____ pounds.

6. What is the combined weight of rocks A, B, and D?

The combined weight is _____ pounds.

7. How much less does rock C weigh than the combined weight of rocks B and D?

Rock C weighs _____ pound less.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 7

My score: _____

TEST—Addition and Subtraction

Express each sum or difference in simplest form.

$$\begin{array}{r} a \\ 1. \quad \frac{3}{8} \\ + \frac{4}{8} \\ \hline \end{array}$$

$$\begin{array}{r} b \\ \frac{7}{10} \\ - \frac{2}{10} \\ \hline \end{array}$$

$$\begin{array}{r} c \\ \frac{5}{12} \\ + \frac{9}{12} \\ \hline \end{array}$$

$$\begin{array}{r} d \\ \frac{8}{9} \\ - \frac{6}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \frac{5}{6} \\ + \frac{2}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{8} \\ + \frac{7}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{10} \\ - \frac{7}{15} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{8}{9} \\ - \frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 6 \\ - \frac{1}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ - \frac{4}{7} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{8} \\ \frac{5}{6} \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{8} \\ 2 \\ + \frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 4\frac{5}{6} \\ + \frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{8} \\ + 2\frac{9}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 6\frac{3}{8} \\ - \frac{5}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 7\frac{3}{8} \\ - \frac{7}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 6\frac{3}{5} \\ - 2\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 4\frac{5}{8} \\ - 1\frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 9\frac{1}{8} \\ 2\frac{4}{6} \\ + \frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{3}{4} \\ \frac{1}{6} \\ + 5\frac{3}{8} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 20

My score: _____

PRE-TEST—Division

Express each quotient in simplest form.

a
1. $4 \div \frac{1}{2}$

b
 $7 \div \frac{2}{3}$

c
 $8 \div \frac{4}{5}$

d
 $9 \div \frac{6}{7}$

2. $\frac{1}{4} \div 2$

$\frac{3}{5} \div 2$

$\frac{3}{7} \div 3$

$\frac{8}{9} \div 6$

3. $\frac{1}{7} \div \frac{1}{2}$

$\frac{1}{8} \div \frac{1}{4}$

$\frac{1}{4} \div \frac{1}{8}$

$\frac{1}{6} \div \frac{1}{7}$

4. $\frac{1}{8} \div \frac{1}{10}$

$\frac{3}{5} \div \frac{2}{3}$

$\frac{4}{7} \div \frac{2}{7}$

$\frac{5}{6} \div \frac{5}{8}$

5. $6 \div \frac{4}{9}$

$\frac{3}{5} \div \frac{3}{5}$

$\frac{2}{3} \div \frac{4}{9}$

$\frac{3}{7} \div 6$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Reciprocals

The product of any number and its **reciprocal** is 1.

reciprocals

$$\frac{2}{3} \times \frac{3}{2} = \frac{2 \times 3}{3 \times 2} = \frac{6}{6} = 1$$

The reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$.

The reciprocal of $\frac{3}{2}$ is ____.

The simplest form for the product of $\frac{2}{3}$ and $\frac{3}{2}$ is ____.

reciprocals

$$\frac{1}{2} \times \frac{2}{1} = \frac{1 \times 2}{2 \times 1} = \frac{2}{2} = 1$$

The reciprocal of $\frac{1}{2}$ is $\frac{2}{1}$ or 2.

The reciprocal of 2 is ____.

The simplest form for the product of $\frac{1}{2}$ and 2 is ____.

Write the reciprocal of each of the following.

	a	b	c	d	e	f
1.	$\frac{3}{5}$ _____	$\frac{7}{8}$ _____	$\frac{4}{5}$ _____	$\frac{5}{7}$ _____	$\frac{4}{9}$ _____	$\frac{6}{7}$ _____
2.	$\frac{5}{3}$ _____	$\frac{8}{7}$ _____	$\frac{5}{4}$ _____	$\frac{7}{5}$ _____	$\frac{9}{4}$ _____	$\frac{7}{6}$ _____
3.	$\frac{1}{8}$ _____	$\frac{1}{3}$ _____	$\frac{1}{4}$ _____	$\frac{1}{9}$ _____	$\frac{1}{16}$ _____	$\frac{1}{14}$ _____
4.	$\frac{8}{1}$ _____	$\frac{3}{1}$ _____	$\frac{4}{1}$ _____	$\frac{9}{1}$ _____	$\frac{16}{1}$ _____	$\frac{14}{1}$ _____
5.	8 _____	3 _____	4 _____	9 _____	16 _____	14 _____
6.	$\frac{8}{5}$ _____	6 _____	$\frac{2}{3}$ _____	$\frac{11}{6}$ _____	$\frac{7}{4}$ _____	12 _____
7.	15 _____	$\frac{10}{9}$ _____	$\frac{12}{11}$ _____	17 _____	$\frac{8}{9}$ _____	$\frac{17}{2}$ _____
8.	$\frac{15}{8}$ _____	$\frac{5}{12}$ _____	11 _____	$\frac{7}{11}$ _____	$\frac{1}{11}$ _____	$\frac{17}{3}$ _____
9.	$\frac{10}{1}$ _____	13 _____	$\frac{1}{17}$ _____	$\frac{5}{11}$ _____	$\frac{9}{7}$ _____	5 _____

Check your answers. Record your score.

Perfect score: 54

My score: _____

Division

Dividing 12 by 3 is the same as multiplying 12 by the reciprocal of 3.

reciprocals

$$12 \div 3 = 4 \quad \text{and} \quad 12 \times \frac{1}{3} = \frac{12}{3} = 4$$

To divide 10 by 2, multiply 10 by the reciprocal of 2.

$$\begin{aligned} 10 \div 2 &= \frac{10}{1} \times \frac{1}{2} \\ &= \frac{10 \times 1}{1 \times 2} \\ &= \frac{10}{2} \\ &= 5 \end{aligned}$$

$10 \div 2 = \underline{\quad}$

$10 \times \frac{1}{2} = \underline{\quad}$

Complete the following as shown.

a

$$\begin{aligned} 1. \quad 14 \div 3 &= \frac{14}{1} \times \frac{1}{3} \\ &= \frac{14 \times 1}{1 \times 3} \\ &= \frac{14}{3} \\ &= 4 \frac{2}{3} \end{aligned}$$

b

$16 \div 2$

c

$18 \div 6$

d

$20 \div 4$

$2. \quad 15 \div 4$

$17 \div 5$

$19 \div 3$

$22 \div 7$

$3. \quad 22 \div 4$

$38 \div 6$

$28 \div 6$

$27 \div 6$

$4. \quad 40 \div 5$

$52 \div 3$

$44 \div 6$

$50 \div 7$

Check your answers. Record your score.

Perfect score: 15

My score:

Division

To divide a whole number by a fractional number, multiply the whole number by the reciprocal of the fractional number.

reciprocals

$$15 \div \frac{3}{4} = \frac{15}{1} \times \frac{4}{3}$$

$$= \frac{15 \times 4}{1 \times 3}$$

$$= \frac{60}{3}$$

$$= 20$$

To divide 15 by $\frac{3}{4}$,
multiply 15 by _____.

$$10 \div \frac{6}{7} = \frac{10}{1} \times \frac{7}{6}$$

$$= \frac{10 \times 7}{1 \times 6}$$

$$= \frac{70}{6}$$

$$= \frac{35}{3}$$

$$= 11 \frac{2}{3}$$

To divide 10 by $\frac{6}{7}$,
multiply 10 by _____.

Express each quotient in simplest form.

a

1. $10 \div \frac{1}{3}$

b

$8 \div \frac{1}{2}$

c

$7 \div \frac{1}{4}$

d

$6 \div \frac{1}{5}$

2. $14 \div \frac{2}{7}$

$15 \div \frac{2}{5}$

$16 \div \frac{3}{8}$

$18 \div \frac{5}{9}$

3. $18 \div \frac{1}{3}$

$14 \div \frac{7}{8}$

$17 \div \frac{1}{2}$

$12 \div \frac{3}{4}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. There are 4 pounds of candy in a box. Each person is to receive $\frac{1}{2}$ pound of candy. How many people will receive candy from the box?

_____ people will receive candy.

2. Each session lasts $\frac{1}{3}$ hour. How many sessions would there be in 9 hours?

There would be _____ sessions.

3. A machine uses a gallon of gas every $\frac{1}{6}$ hour. How many gallons of gas would it use in 10 hours?

The machine would use _____ gallons.

4. Six gallons of liquid are to be poured into smaller containers. How many containers holding $\frac{4}{5}$ gallon each can be filled? What fractional part of the next container will be used?

_____ containers can be filled.

_____ of the next container will be used.

5. A line segment 24 inches long is separated into segments that are each $\frac{3}{8}$ inch long. How many segments are there?

There are _____ segments.

6. Each class period lasts $\frac{3}{5}$ hour. How many class periods could there be in 8 hours? What fractional part of a period would be left over?

There could be _____ periods.

_____ of a period would be left over.

7. Two thirds quart of oil is put into each new engine. How many engines could receive oil from a 12-quart container of oil?

_____ engines could receive oil.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 9

My score: _____

Division

To divide a fractional number by a whole number, multiply the fractional number by the reciprocal of the whole number.

reciprocals

$$\frac{1}{2} \div 4 = \frac{1}{2} \times \frac{1}{4}$$

$$= \frac{1 \times 1}{2 \times 4}$$

$$= \frac{1}{8}$$

To divide $\frac{1}{2}$ by 4,
multiply $\frac{1}{2}$ by _____.

$$\frac{2}{3} \div 5 = \frac{2}{3} \times \frac{1}{5}$$

$$= \frac{2 \times 1}{3 \times 5}$$

$$= \frac{2}{15}$$

To divide $\frac{2}{3}$ by 5,
multiply $\frac{2}{3}$ by _____.

Express each quotient in simplest form.

a

1. $\frac{1}{2} \div 6$

b

$\frac{1}{4} \div 2$

c

$\frac{1}{3} \div 5$

d

$\frac{1}{6} \div 2$

2. $\frac{3}{5} \div 4$

$\frac{5}{8} \div 2$

$\frac{3}{4} \div 4$

$\frac{5}{6} \div 3$

3. $\frac{3}{4} \div 6$

$\frac{2}{3} \div 6$

$\frac{4}{5} \div 4$

$\frac{5}{6} \div 10$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. One third pound of flour is separated into 2 bowls. The same amount of flour is in each bowl. How many pounds of flour are in each bowl?

_____ pound is in each bowl.

2. One half of a room is painted. Each of 4 people did the same amount of painting. What fractional part of the room did each person paint?

Each person painted _____ of the room.

3. One fifth hour is separated into 3 sessions. The same number of minutes is in each session. Each session is what fractional part of an hour?

Each session is _____ hour.

4. A board $\frac{8}{9}$ yard long is sawed into 4 parts. Each part is the same length. How long is each part?

Each part is _____ yard long.

5. Seven eighths gallon of liquid is poured into 4 containers. Each container has the same amount in it. How many gallons of liquid are in each container?

_____ gallon is in each container.

6. Five pupils are to read aloud during class. The class is $\frac{5}{6}$ hour long. Each pupil is to read the same amount of time. How long will each read?

Each pupil will read _____ hour.

7. Four machines were assembled in $\frac{6}{7}$ of a week. The same amount of time is needed to assemble each machine. What fractional part of a week would it take to assemble one machine?

It would take _____ of a week.

Check your answers. Record your score.

Perfect score: 7

My score: _____

Division

reciprocals

$$\begin{aligned}\frac{1}{4} \div \frac{1}{3} &= \frac{1}{4} \times \frac{3}{1} \\ &= \frac{1 \times 3}{4 \times 1} \\ &= \frac{3}{4}\end{aligned}$$

To divide $\frac{1}{4}$ by $\frac{1}{3}$,
multiply $\frac{1}{4}$ by _____.

$$\begin{aligned}\frac{3}{4} \div \frac{1}{2} &= \frac{3}{4} \times \frac{2}{1} \\ &= \frac{3 \times 2}{4 \times 1} \\ &= \frac{6}{4} \\ &= 1 \frac{2}{4} \\ &= 1 \frac{1}{2}\end{aligned}$$

To divide $\frac{3}{4}$ by $\frac{1}{2}$,
multiply $\frac{3}{4}$ by _____.

Express each quotient in simplest form.

a

1. $\frac{1}{5} \div \frac{1}{2}$

b

$\frac{1}{3} \div \frac{1}{2}$

c

$\frac{1}{8} \div \frac{1}{4}$

d

$\frac{1}{9} \div \frac{1}{6}$

2. $\frac{3}{5} \div \frac{1}{2}$

$\frac{4}{7} \div \frac{2}{3}$

$\frac{4}{5} \div \frac{1}{10}$

$\frac{5}{6} \div \frac{2}{3}$

3. $\frac{4}{5} \div \frac{2}{5}$

$\frac{3}{8} \div \frac{3}{4}$

$\frac{4}{9} \div \frac{1}{5}$

$\frac{7}{8} \div \frac{7}{10}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. How many $\frac{1}{6}$ -hour sessions are there in $\frac{1}{2}$ hour?

There are _____ sessions.

2. Millie has a ribbon $\frac{3}{4}$ yard long. How many $\frac{1}{4}$ -yard segments can she get from her ribbon?

She can get _____ segments.

3. In problem 2, how many $\frac{1}{8}$ -yard segments can she get from her ribbon?

She can get _____ segments.

4. A machine uses gas at the rate of $\frac{1}{5}$ gallon an hour. So far $\frac{9}{10}$ gallon has been used. How many hours has the machine operated?

The machine operated _____ hours.

5. Suppose the machine in problem 4 has used $\frac{4}{5}$ gallon of gas. How many hours did the machine operate?

The machine operated _____ hours.

6. How many pieces each $\frac{1}{3}$ yard long can be cut from a board that is $\frac{6}{9}$ yard long?

_____ pieces can be cut.

7. Wilbur walked $\frac{5}{6}$ hour. He walked at the rate of 1 mile every $\frac{1}{6}$ hour. How many miles did he walk?

He walked _____ miles.

8. Suppose in problem 7 Wilbur walked 1 mile every $\frac{5}{12}$ hour. How many miles did he walk?

He walked _____ miles.

9. A bell rings every $\frac{1}{6}$ hour. Assume it just rang. How many times will it ring in the next $\frac{2}{3}$ hour?

It will ring _____ times.

Check your answers. Record your score.

Perfect score: 9

My score: _____

NAME _____

Division

Express each quotient in simplest form.

a

1. $8 \div \frac{2}{3}$

b

$\frac{4}{7} \div 5$

c

$\frac{1}{6} \div \frac{1}{3}$

d

$\frac{3}{5} \div \frac{2}{3}$

2. $\frac{1}{8} \div \frac{1}{10}$

$6 \div \frac{1}{4}$

$\frac{1}{3} \div 2$

$\frac{1}{7} \div \frac{1}{3}$

3. $\frac{1}{2} \div \frac{1}{5}$

$\frac{9}{10} \div \frac{4}{5}$

$9 \div \frac{3}{5}$

$\frac{4}{9} \div 6$

4. $\frac{3}{5} \div 3$

$\frac{1}{3} \div \frac{1}{6}$

$\frac{3}{8} \div \frac{3}{10}$

$6 \div \frac{4}{5}$

5. $\frac{7}{8} \div \frac{7}{8}$

$\frac{6}{7} \div \frac{8}{9}$

$7 \div \frac{1}{3}$

$\frac{6}{7} \div 4$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Solve. Express each answer in simplest form.

1. It takes $\frac{1}{3}$ hour to produce 1 woomble. How many woombles could be produced in 9 hours?

_____ woombles could be produced.

2. A rope $\frac{3}{4}$ yard long is cut into 9 pieces. Each piece is the same length. How long is each piece?

Each piece is _____ yard long.

3. Each class period is $\frac{3}{5}$ hour long. How many topics can be covered in 1 class period if it takes $\frac{3}{10}$ hour to cover each topic?

_____ topics can be covered.

4. Eight pounds of candy are separated into boxes. How many boxes are needed if $\frac{2}{3}$ pound of candy is put into each box?

_____ boxes are needed.

5. Michelle and her 5 friends want to share $\frac{3}{4}$ pound of candy equally. How much candy will each person get?

Each person will get _____ pound.

6. A board $\frac{9}{12}$ yard long is sawed into pieces that are each $\frac{1}{4}$ yard long. How many pieces will there be?

There will be _____ pieces.

7. Four fifths gallon of milk is separated into 12 glasses. The same amount is in each glass. How much milk is in each glass?

_____ gallon is in each glass.

8. Mr. Roe has $\frac{9}{10}$ pound of a chemical to put into 6 tubes. Assume he puts the same amount in each tube. How many pounds of chemical will be in each tube?

_____ pounds will be in each tube.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

NAME _____

TEST—Division

Express each quotient in simplest form.

a

1. $5 \div \frac{1}{3}$

b

$8 \div \frac{3}{4}$

c

$4 \div \frac{2}{3}$

d

$10 \div \frac{6}{7}$

2. $\frac{1}{2} \div 3$

$\frac{4}{7} \div 3$

$\frac{5}{9} \div 5$

$\frac{6}{7} \div 8$

3. $\frac{1}{9} \div \frac{1}{4}$

$\frac{1}{10} \div \frac{1}{5}$

$\frac{1}{5} \div \frac{1}{10}$

$\frac{1}{3} \div \frac{1}{4}$

4. $\frac{1}{6} \div \frac{1}{9}$

$\frac{4}{5} \div \frac{3}{4}$

$\frac{7}{9} \div \frac{2}{3}$

$\frac{5}{8} \div \frac{5}{6}$

5. $8 \div \frac{6}{7}$

$\frac{1}{8} \div \frac{1}{8}$

$\frac{5}{8} \div 10$

$\frac{4}{9} \div \frac{2}{3}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

PRE-TEST—Division

Express each quotient in simplest form.

a
1. $2\frac{1}{2} \div 3$

b
 $1\frac{2}{5} \div 3$

c
 $1\frac{5}{7} \div 6$

d
 $3\frac{3}{5} \div 10$

2. $4 \div 1\frac{4}{5}$

$3 \div 2\frac{1}{2}$

$4 \div 1\frac{1}{3}$

$6 \div 1\frac{1}{3}$

3. $1\frac{4}{5} \div \frac{2}{7}$

$2\frac{1}{3} \div \frac{3}{4}$

$1\frac{4}{5} \div \frac{3}{7}$

$2\frac{2}{3} \div \frac{6}{7}$

4. $\frac{1}{4} \div 1\frac{2}{3}$

$\frac{2}{3} \div 2\frac{1}{2}$

$\frac{1}{6} \div 1\frac{1}{2}$

$\frac{3}{5} \div 1\frac{4}{5}$

5. $1\frac{2}{7} \div 2\frac{1}{2}$

$1\frac{1}{5} \div 2\frac{2}{3}$

$4\frac{1}{2} \div 1\frac{1}{5}$

$1\frac{4}{5} \div 1\frac{1}{5}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Division

$$\begin{aligned}
 2\frac{1}{5} \div 4 &= \frac{11}{5} \div 4 \\
 &= \frac{11}{5} \times \frac{1}{4} \\
 &= \frac{11 \times 1}{5 \times 4} \\
 &= \frac{11}{20}
 \end{aligned}$$

To divide $2\frac{1}{5}$ by 4, rename $2\frac{1}{5}$

as $\frac{11}{5}$ and multiply $\frac{11}{5}$ by ____.

$$\begin{aligned}
 5 \div 2\frac{1}{3} &= 5 \div \frac{7}{3} \\
 &= \frac{5}{1} \times \frac{3}{7} \\
 &= \frac{5 \times 3}{1 \times 7} \\
 &= \frac{15}{7} \\
 &= 2\frac{1}{7}
 \end{aligned}$$

To divide 5 by $2\frac{1}{3}$, rename $2\frac{1}{3}$ as

$\frac{7}{3}$ and multiply 5 by ____.

Express each quotient in simplest form.

1. $\overset{a}{1\frac{1}{2}} \div 2$

$\overset{b}{2\frac{1}{3}} \div 6$

$\overset{c}{4\frac{5}{8}} \div 10$

$\overset{d}{2\frac{6}{7}} \div 3$

2. $2 \div 1\frac{1}{3}$

$4 \div 1\frac{1}{2}$

$2 \div 1\frac{3}{4}$

$3 \div 2\frac{6}{7}$

3. $3\frac{1}{8} \div 2$

$3 \div 2\frac{3}{5}$

$1\frac{4}{5} \div 2$

$4 \div 3\frac{2}{3}$

Check your answers. Record your score.

Perfect score: 12 My score: _____

Problems

Solve. Express each answer in simplest form.

1. A $1\frac{1}{2}$ -pound roast is cut into 4 parts. Each part weighs the same. How much does each part weigh?

Each part weighs _____ pound.

2. Five pounds of sand are put into containers. How many containers are needed if $1\frac{1}{4}$ pounds of sand are put into each one?

_____ containers are needed.

3. Two and two thirds tons of ore can be loaded on each truck. How many trucks would be needed to haul 16 tons of ore?

_____ trucks would be needed.

4. A rod $4\frac{1}{4}$ feet long is separated into 3 pieces. Each piece is the same length. How long is each piece?

Each piece is _____ feet long.

5. Veta's father put $5\frac{3}{4}$ gallons of paint into 2 buckets. He put the same amount in each bucket. How much paint is in each bucket?

_____ gallons are in each bucket.

6. Six quarts of milk are to be put into pitchers that hold $1\frac{1}{3}$ quarts each. How many pitchers can be filled? What part of the next pitcher would be used?

_____ pitchers can be filled.

_____ of the next pitcher would be used.

7. Carol works $1\frac{1}{4}$ hours each day. How many days will it take her to work a total of 15 hours?

It will take _____ days.

8. Assume Carol works $1\frac{1}{2}$ hours each day. How many days will it take her to work 15 hours?

It will take _____ days.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 9 My score: _____

Division

$$\begin{aligned}
 1\frac{2}{5} \div \frac{4}{5} &= \frac{7}{5} \div \frac{4}{5} \\
 &= \frac{7}{5} \times \frac{5}{4} \\
 &= \frac{7 \times 5}{5 \times 4} \\
 &= \frac{35}{20} \\
 &= 1\frac{15}{20} \\
 &= 1\frac{3}{4}
 \end{aligned}$$

To divide $1\frac{2}{5}$ by $\frac{4}{5}$, rename $1\frac{2}{5}$ as

_____ and multiply $\frac{7}{5}$ by ____.

$$\begin{aligned}
 \frac{1}{2} \div 2\frac{1}{4} &= \frac{1}{2} \div \frac{9}{4} \\
 &= \frac{1}{2} \times \frac{4}{9} \\
 &= \frac{1 \times 4}{2 \times 9} \\
 &= \frac{4}{18} \\
 &= \frac{2}{9}
 \end{aligned}$$

To divide $\frac{1}{2}$ by $2\frac{1}{4}$, rename $2\frac{1}{4}$ as

_____ and multiply $\frac{1}{2}$ by ____.

Express each quotient in simplest form.

a

1. $1\frac{1}{2} \div \frac{1}{3}$

b

$2\frac{1}{3} \div \frac{1}{6}$

c

$1\frac{3}{4} \div \frac{7}{8}$

d

$2\frac{1}{5} \div \frac{3}{5}$

2. $\frac{1}{4} \div 1\frac{1}{3}$

$\frac{1}{4} \div 1\frac{1}{2}$

$\frac{1}{3} \div 2\frac{1}{2}$

$\frac{3}{5} \div 1\frac{1}{6}$

3. $4\frac{2}{3} \div \frac{5}{6}$

$\frac{7}{8} \div 1\frac{1}{4}$

$3\frac{3}{8} \div \frac{3}{4}$

$\frac{9}{10} \div 1\frac{1}{5}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. How many pieces each $\frac{1}{4}$ foot long can be cut from a board that is $3\frac{1}{2}$ feet long?

_____ pieces can be cut.

2. Each class period is $\frac{5}{6}$ hour long. How many periods can there be in $2\frac{1}{2}$ hours?

There could be _____ periods.

3. A machine used $3\frac{3}{4}$ gallons of fuel. Three fourths gallon was used each hour. How many hours did the machine operate?

The machine operated _____ hours.

4. Suppose in problem 3 that $\frac{1}{2}$ gallon of fuel was used each hour. How long did the machine operate?

The machine operated _____ hours.

5. Fred works $\frac{5}{6}$ hour each day. How many days will it take him to work $10\frac{5}{6}$ hours?

It will take _____ days.

6. In problem 5, how many days will it take Fred to work $21\frac{2}{3}$ hours?

It will take _____ days.

7. A line segment is $5\frac{1}{4}$ inches long. Into how many sections each $\frac{7}{8}$ inch long can the line segment be separated?

It can be separated into _____ sections.

8. How many sections each $\frac{9}{16}$ inch long are needed to form a line segment that is $3\frac{3}{8}$ inches long?

_____ sections are needed.

9. A stack of books is $16\frac{2}{3}$ inches high. Each book is $\frac{5}{6}$ inch thick. How many books are in the stack?

_____ books are in the stack.

1.

2.

3.

4.

5.

6.

7.

8.

9.

Check your answers. Record your score.

Perfect score: 9

My score: _____

Division

$$\begin{aligned}
 3\frac{1}{2} \div 1\frac{1}{2} &= \frac{7}{2} \div \frac{3}{2} \\
 &= \frac{7}{2} \times \frac{2}{3} \\
 &= \frac{7 \times 2}{2 \times 3} \\
 &= \frac{14}{6} \\
 &= 2\frac{2}{6} \\
 &= 2\frac{1}{3}
 \end{aligned}$$

To divide $3\frac{1}{2}$ by $1\frac{1}{2}$, rename $3\frac{1}{2}$

as _____ and rename $1\frac{1}{2}$ as _____.

Then multiply $\frac{7}{2}$ by ____.

Express each quotient in simplest form.

a

1. $1\frac{1}{3} \div 2\frac{1}{2}$

b

$1\frac{1}{2} \div 1\frac{2}{5}$

c

$1\frac{1}{7} \div 1\frac{2}{3}$

d

$2\frac{1}{2} \div 1\frac{1}{3}$

2. $2\frac{2}{3} \div 1\frac{2}{3}$

$1\frac{1}{5} \div 2\frac{1}{4}$

$1\frac{1}{3} \div 1\frac{1}{5}$

$1\frac{1}{7} \div 1\frac{1}{3}$

3. $2\frac{1}{4} \div 1\frac{1}{2}$

$1\frac{2}{3} \div 1\frac{1}{9}$

$4\frac{1}{2} \div 1\frac{1}{2}$

$3\frac{1}{3} \div 1\frac{5}{9}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve. Express each answer in simplest form.

1. Mrs. Treadle bought $5\frac{1}{3}$ pounds of rice. It came in $1\frac{1}{3}$ -pound packages. How many packages did she buy?

She bought _____ packages of rice.

2. The city spread $7\frac{1}{2}$ tons of salt on the streets. There were $1\frac{1}{4}$ tons carried on each load. How many loads of salt were spread on the streets?

_____ loads were spread.

3. Helen poured $28\frac{1}{2}$ cups of milk into glasses. Each glass held $1\frac{1}{4}$ cups. How many glasses did she fill? What part of another glass is left over?

She will have _____ full glasses.

_____ of the last glass is used.

4. A wire is $24\frac{3}{8}$ inches long. How many pieces each $1\frac{1}{2}$ inches long can be cut from this wire? What fractional part of a piece will be left over?

_____ pieces can be cut from the wire.

_____ of a piece will be left over.

5. It takes $1\frac{5}{6}$ hours to assemble a machine. How many machines could be assembled in $16\frac{1}{2}$ hours?

_____ machines could be assembled.

6. Mrs. Adams put $13\frac{3}{4}$ pounds of candy into boxes. Each box held $2\frac{1}{2}$ pounds. How many boxes did she fill? What part of another box is left over?

_____ boxes were filled.

_____ of the last box was used.

1.

2.

3.

4.

5.

6.

Check your answers. Record your score.

Perfect score: 9

My score: _____

Division

Express each quotient in simplest form.

a

1. $1\frac{3}{5} \div 3$

b

$2 \div 2\frac{1}{3}$

c

$1\frac{1}{5} \div \frac{7}{8}$

d

$\frac{1}{5} \div 3\frac{1}{2}$

2. $2\frac{2}{3} \div 1\frac{1}{4}$

$2\frac{1}{2} \div 6$

$8 \div 1\frac{1}{3}$

$\frac{5}{8} \div 1\frac{1}{4}$

3. $1\frac{3}{4} \div \frac{5}{6}$

$1\frac{1}{4} \div 1\frac{3}{8}$

$1\frac{4}{5} \div 6$

$6 \div 1\frac{1}{7}$

4. $2 \div 1\frac{1}{3}$

$2\frac{1}{2} \div \frac{3}{4}$

$1\frac{1}{4} \div 1\frac{1}{6}$

$1\frac{7}{8} \div 3$

5. $1\frac{1}{8} \div \frac{2}{3}$

$\frac{5}{8} \div 2\frac{1}{3}$

$1\frac{3}{7} \div 1\frac{1}{7}$

$\frac{1}{3} \div 1\frac{1}{9}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Solve. Express each answer in simplest form.

1. Paquita put $3\frac{1}{3}$ pounds of salt into 4 boxes. She put the same amount into each box. How many pounds of salt are in each box?

_____ pound is in each box.

2. Tim played ball for $9\frac{1}{2}$ hours in 3 days. He played the same length of time each day. How many hours did he play ball each day?

He played _____ hours each day.

3. The school day lasts $4\frac{4}{5}$ hours. Each class period lasts $\frac{2}{3}$ hour. How many full periods are there? What part of a period is left over?

There are _____ periods.

_____ of a period is left over.

4. Mr. Bell poured $12\frac{1}{4}$ gallons of paint into pails. Each pail holds $1\frac{1}{2}$ gallons. How many full pails of paint are there? What fractional part of the next pail is used?

There are _____ full pails.

_____ of the next pail is used.

5. How many $1\frac{1}{2}$ - hour practice sessions are there in 6 hours?

There are _____ sessions in 6 hours.

6. How many $1\frac{3}{4}$ - hour practice sessions are there in $10\frac{1}{2}$ hours?

There are _____ sessions in $10\frac{1}{2}$ hours.

7. If you divide $2\frac{1}{2}$ by itself, what is the quotient?

The quotient is _____.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 9

My score: _____

TEST—Division

Express each quotient in simplest form.

$$1. \quad \overset{a}{2\frac{1}{3} \div 5}$$

$$\overset{b}{1\frac{4}{5} \div 4}$$

$$\overset{c}{4\frac{2}{3} \div 7}$$

$$\overset{d}{7\frac{1}{2} \div 10}$$

$$2. \quad 6 \div 1\frac{2}{5}$$

$$6 \div 1\frac{2}{3}$$

$$3 \div 1\frac{1}{5}$$

$$9 \div 1\frac{1}{5}$$

$$3. \quad 1\frac{1}{5} \div \frac{5}{7}$$

$$1\frac{1}{8} \div \frac{5}{7}$$

$$2\frac{2}{3} \div \frac{4}{5}$$

$$1\frac{1}{8} \div \frac{3}{5}$$

$$4. \quad \frac{1}{3} \div 1\frac{1}{2}$$

$$\frac{2}{7} \div 1\frac{2}{3}$$

$$\frac{1}{4} \div 1\frac{1}{6}$$

$$\frac{2}{3} \div 1\frac{1}{9}$$

$$5. \quad 3\frac{1}{3} \div 1\frac{1}{2}$$

$$2\frac{1}{2} \div 1\frac{1}{6}$$

$$2\frac{2}{3} \div 1\frac{1}{6}$$

$$1\frac{1}{2} \div 2\frac{1}{4}$$

Check your answers. Record your score.

Perfect score: 20

My score: _____

PRE-TEST—Measurement

Complete the following.

a

1. 5 ft. = _____ in.
2. 12 ft. = _____ yd.
3. 3 yd. = _____ in.
4. 120 sec. = _____ min.
5. 8 hr. = _____ min.
6. 16 pt. = _____ qt.
7. 7 gal. = _____ qt.

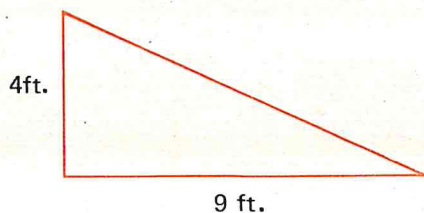
b

- 5 ft. 10 in. = _____ in.
- 6 yd. 2 ft. = _____ ft.
- 4 min. 8 sec. = _____ sec.
- 3 hr. 12 min. = _____ min.
- 5 pt. 1 c. = _____ c.
- 4 qt. 1 pt. = _____ pt.
- 3 gal. 3 qt. = _____ qt.

Find the area of each right triangle or rectangle below.

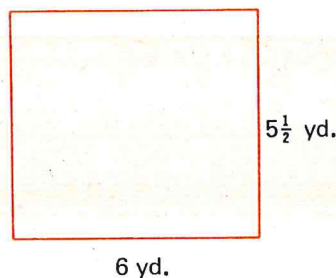
a

8.



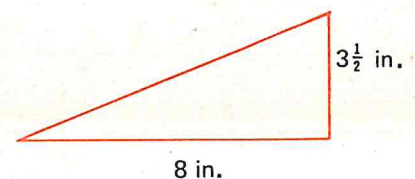
_____ sq. ft.

b



_____ sq. yd.

c

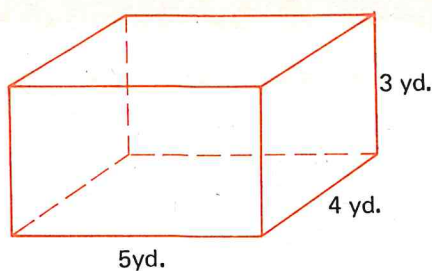


_____ sq. in.

Find the volume of each rectangular solid below.

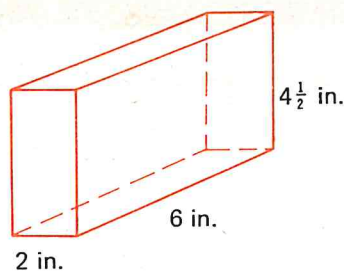
a

9.



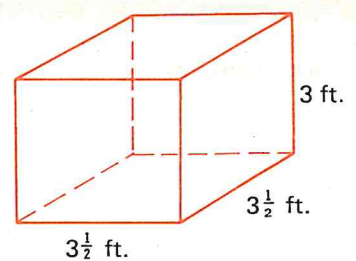
_____ cu. yd.

b



_____ cu. in.

c



_____ cu. ft.

Check your answers. Record your score.

Perfect score: 20

My score: _____

Measurement

$12 \text{ in.} = 1 \text{ ft.}$

$1 \text{ in.} = \frac{1}{12} \text{ ft.}$

$3 \text{ ft.} = 1 \text{ yd.}$

$1 \text{ ft.} = \frac{1}{3} \text{ yd.}$

$36 \text{ in.} = 1 \text{ yd.}$

$1 \text{ in.} = \frac{1}{36} \text{ yd.}$

$60 \text{ sec.} = 1 \text{ min.}$

$1 \text{ sec.} = \frac{1}{60} \text{ min.}$

$60 \text{ min.} = 1 \text{ hr.}$

$1 \text{ min.} = \frac{1}{60} \text{ hr.}$

$24 \text{ hr.} = 1 \text{ da.}$

$1 \text{ hr.} = \frac{1}{24} \text{ da.}$

$2 \text{ c.} = 1 \text{ pt.}$

$1 \text{ c.} = \frac{1}{2} \text{ pt.}$

$2 \text{ pt.} = 1 \text{ qt.}$

$1 \text{ pt.} = \frac{1}{2} \text{ qt.}$

$4 \text{ qt.} = 1 \text{ gal.}$

$1 \text{ qt.} = \frac{1}{4} \text{ gal.}$

$3 \text{ hr.} = \text{ ? } \text{ min.}$

$$\begin{aligned} 1 \text{ hr.} &= 60 \text{ min., so} \\ (3 \times 1) \text{ hr.} &= (3 \times 60) \text{ min.} \end{aligned}$$

$3 \text{ hr.} = \text{ } \text{ min.}$

$36 \text{ in.} = \text{ ? } \text{ ft.}$

$$\begin{aligned} 1 \text{ in.} &= \frac{1}{12} \text{ ft., so} \\ (36 \times 1) \text{ in.} &= (36 \times \frac{1}{12}) \text{ ft.} \end{aligned}$$

$36 \text{ in.} = \text{ } \text{ ft.}$

Complete the following.

*a**b*

1. $6 \text{ ft.} = \text{ } \text{ in.}$

$60 \text{ in.} = \text{ } \text{ ft.}$

2. $9 \text{ yd.} = \text{ } \text{ ft.}$

$12 \text{ ft.} = \text{ } \text{ yd.}$

3. $5 \text{ yd.} = \text{ } \text{ in.}$

$144 \text{ in.} = \text{ } \text{ yd.}$

4. $3 \text{ min.} = \text{ } \text{ sec.}$

$120 \text{ sec.} = \text{ } \text{ min.}$

5. $5 \text{ hr.} = \text{ } \text{ min.}$

$360 \text{ min.} = \text{ } \text{ hr.}$

6. $5 \text{ da.} = \text{ } \text{ hr.}$

$144 \text{ hr.} = \text{ } \text{ da.}$

7. $3 \text{ pt.} = \text{ } \text{ c.}$

$8 \text{ c.} = \text{ } \text{ pt.}$

8. $5 \text{ qt.} = \text{ } \text{ pt.}$

$10 \text{ pt.} = \text{ } \text{ qt.}$

9. $4 \text{ gal.} = \text{ } \text{ qt.}$

$12 \text{ qt.} = \text{ } \text{ gal.}$

10. $5 \text{ yd.} = \text{ } \text{ ft.}$

$24 \text{ qt.} = \text{ } \text{ gal.}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Solve each problem.

1. The top of a doorway is 84 inches above the floor. What is the height of the doorway in feet?

The height of the doorway is _____ feet.

2. The milkman delivered 24 quarts of milk to the Lokey's house last month. How many gallons of milk was this?

It was _____ gallons of milk.

3. Chico sold papers for 2 hours yesterday afternoon. How many minutes was this?

It was _____ minutes.

4. The distance along the foul line from home plate to the right field fence is 336 feet. What is this distance in yards?

It is _____ yards.

5. It rained 3 hours Tuesday afternoon. How many minutes did it rain?

It rained _____ minutes.

6. How many quarts of liquid will it take to fill a 5-gallon can?

It will take _____ quarts of liquid.

7. Jerry has 125 yards of kite string. How many feet of string does he have?

He has _____ feet of string.

8. A picnic jug contains 5 pints of fruit punch. How many 1-cup containers can be filled by using the liquid in the jug?

_____ containers can be filled.

9. It took Harold 5 minutes to run around the park. How many seconds did it take?

It took _____ seconds.

1.

2.

3.

4.

5.

6.

7.

8.

9.

Check your answers. Record your score.

Perfect score: 9

My score: _____

Measurement

2 min. 30 sec. = ? sec.

6 ft. 4 in. = ? in.

Since 1 min. = 60 sec.,
2 min. = 2×60 or 120 sec., so
2 min. 30 sec. = $(120 + 30)$ sec.

Since 1 ft. = 12 in.,
6 ft. = 6×12 or 72 in., so
6 ft. 4 in. = $(72 + 4)$ in.

2 min. 30 sec. = _____ sec.

6 ft. 4 in. = _____ in.

Complete the following.

a

b

- | | |
|---------------------------------|-----------------------------|
| 1. 5 ft. 4 in. = _____ in. | 2 hr. 45 min. = _____ min. |
| 2. 3 yd. 5 in. = _____ in. | 3 min. 15 sec. = _____ sec. |
| 3. 5 yd. 2 ft. = _____ ft. | 1 da. 12 hr. = _____ hr. |
| 4. 2 pt. 1 c. = _____ c. | 4 ft. 7 in. = _____ in. |
| 5. 3 qt. 1 pt. = _____ pt. | 2 yd. 1 ft. = _____ ft. |
| 6. 5 gal. 3 qt. = _____ qt. | 2 yd. 9 in. = _____ in. |
| 7. 4 hr. 30 min. = _____ min. | 3 pt. 1 c. = _____ c. |
| 8. 2 min. 48 sec. = _____ sec. | 2 qt. 1 pt. = _____ pt. |
| 9. 2 da. 8 hr. = _____ hr. | 3 gal. 2 qt. = _____ qt. |
| 10. 9 ft. 6 in. = _____ in. | 3 hr. 15 min. = _____ min. |
| 11. 7 min. 25 sec. = _____ sec. | 4 gal. 3 qt. = _____ qt. |
| 12. 4 hr. 20 min. = _____ min. | 8 ft. 11 in. = _____ in. |

Check your answers. Record your score.

Perfect score: 24 My score: _____

Problems

Solve each problem.

1. The feature film at the King Theater lasted 1 hour 45 minutes. How many minutes did the film last?

The film lasted _____ minutes.

2. Mr. Buckley is 6 feet 3 inches tall. What is his height in inches?

His height is _____ inches.

3. An aquarium will hold 3 gallons 3 quarts of water. What is the capacity of the aquarium in quarts?

The capacity is _____ quarts.

4. Jimmy's cousin ran the mile in 4 minutes 58 seconds. How many seconds did it take him to run the mile?

It took him _____ seconds.

5. Malcolm has a rope which is 5 feet 9 inches long. What is the length of the rope in inches?

The rope is _____ inches long.

6. Mrs. Jacobs has a clothesline which is 15 yards 27 inches long. What is the length of the clothesline in inches?

The clothesline is _____ inches long.

7. The capacity of a large picnic cooler is 2 gallons 2 quarts. What is the capacity of the cooler in quarts?

The capacity is _____ quarts.

8. Sharon is in school 5 hours 30 minutes each day. How many minutes is she in school each day?

She is in school _____ minutes each day.

9. A doorway is 2 feet 8 inches wide. What is the width of the doorway in inches?

The doorway is _____ inches wide.

1.

2.

3.

4.

5.

6.

7.

8.

9.

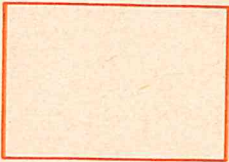
Check your answers. Record your score.

Perfect score: 9

My score: _____

Measurement—Area


To find the *area measure* (A) of a rectangle, multiply the measure of its *length* (l) by the measure of its *width* (w).



$$A = l \times w$$

$$= 6 \times 4$$

$$= 24$$



$$A = l \times w$$

$$= \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

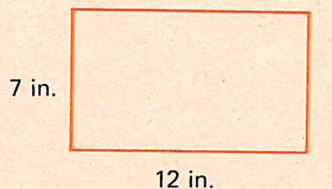
The area is 24 square inches (sq. in.).

The area is _____ square feet (sq. ft.).

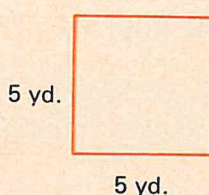
Find the area of each rectangle below.

*a**b**c*

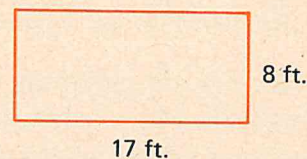
1.



_____ sq. in.

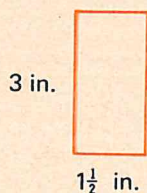


_____ sq. yd.

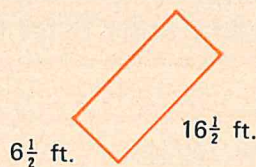


_____ sq. ft.

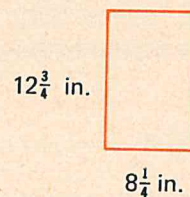
2.



_____ sq. in.



_____ sq. ft.



_____ sq. in.

Find the area of each rectangle described below.

	<i>length</i>	<i>width</i>	<i>area</i>
3.	12 ft.	8 ft.	_____ sq. ft.
4.	16 yd.	9 yd.	_____ sq. yd.
5.	13 $\frac{1}{2}$ in.	5 in.	_____ sq. in.
6.	1 $\frac{1}{2}$ ft.	1 $\frac{1}{2}$ ft.	_____ sq. ft.
7.	7 $\frac{3}{4}$ in.	5 $\frac{1}{4}$ in.	_____ sq. in.

Check your answers. Record your score.

Perfect score: 11

My score: _____

Problems

Solve each problem.

1. David has a rectangular piece of plywood which is 8 feet long and 4 feet wide. What is the area of the piece of plywood?

The area is _____ square feet.

2. Mrs. Hale purchased a rectangular piece of carpet which is 6 yards long and 4 yards wide. How many square yards of carpet did she purchase?

She purchased _____ square yards of carpet.

3. A janitor waxed a floor which is 24 feet long and 18 feet wide. How many square feet of floor did he wax?

He waxed _____ square feet of floor.

4. The playground is shaped like a rectangle. Its length is 140 yards and its width is 60 yards. What is the area of the playground?

The area is _____ square yards.

5. Mrs. Manning has a rectangular bulletin board which is 28 inches long and 24 inches wide. What is the area of the bulletin board?

The area is _____ square inches.

6. Mr. Cross purchased a rectangular lot which is 120 feet long and 60 feet wide. What is the area of the lot?

The area is _____ square feet.

7. Linda has a rectangular-shaped garden. Its length is 24 feet and its width is 16 feet. What is the area of her garden?

The area is _____ square feet.

8. A rectangular-shaped desk top is 60 inches long and 24 inches wide. What is the area of the desk top?

The area is _____ square inches.

1.

2.

3.

4.

5.

6.

7.

8.

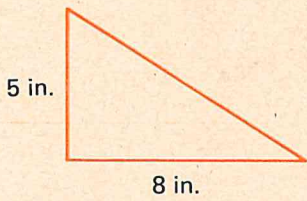
Check your answers. Record your score.

Perfect score: 8

My score: _____

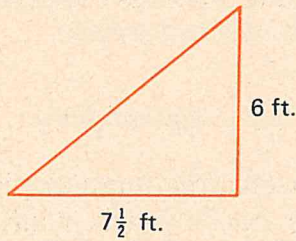
Measurement—Area

To determine the *area measure* (A) of a right triangle, find *one half* the product of the measure of its *base* (b) and the measure of its *height* (h).



$$\begin{aligned} A &= \frac{1}{2} \times b \times h \\ &= \frac{1}{2} \times (8 \times 5) \\ &= \frac{1}{2} \times 40 \\ &= 20 \end{aligned}$$

The area is 20 sq. in.



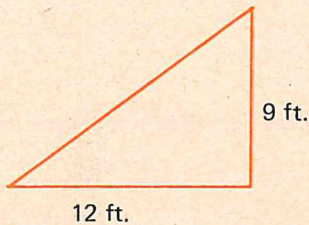
$$\begin{aligned} A &= \frac{1}{2} \times b \times h \\ &= \frac{1}{2} \times (7\frac{1}{2} \times 6) \\ &= \frac{1}{2} \times 45 \\ &= 22\frac{1}{2} \end{aligned}$$

The area is _____ sq. ft.

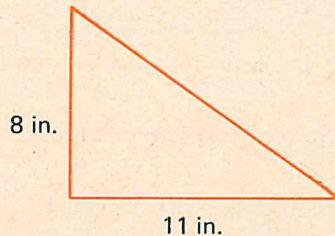
Find the area of each right triangle below.

a

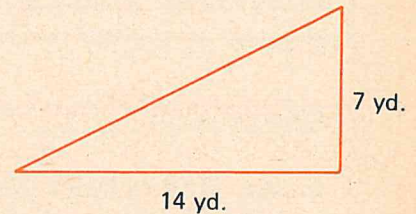
1.



_____ sq. ft.

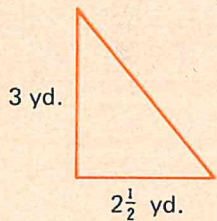
b

_____ sq. in.

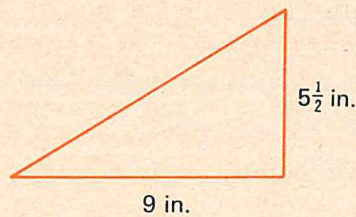
c

_____ sq. yd.

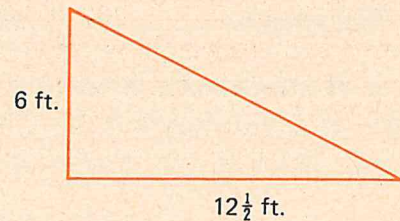
2.



_____ sq. yd.



_____ sq. in.



_____ sq. ft.

Find the area of each right triangle described below.

	<i>base</i>	<i>height</i>	<i>area</i>
3.	8 ft.	9 ft.	_____ sq. ft.
4.	7 yd.	5 yd.	_____ sq. yd.
5.	4 1/2 in.	6 in.	_____ sq. in.
6.	5 ft.	3 1/2 ft.	_____ sq. ft.
7.	3 3/4 in.	2 in.	_____ sq. in.

Check your answers. Record your score.

Perfect score: 11

My score: _____

Problems

Solve each problem.

1. The edges of a flower garden form a right triangle. The base of the triangle is 16 feet and the height is 8 feet. What is the area of the garden?

The area is _____ square feet.

2. A sailboat has a sail which is shaped like a right triangle. The base of the triangle is 14 feet and the height is 20 feet. What is the area of the sail?

The area is _____ square feet.

3. Anne has a piece of poster board which is shaped like a right triangle. The base of the triangle is 28 inches and the height is $16\frac{1}{2}$ inches. What is the area of the piece of poster board?

The area is _____ square inches.

4. Mr. McKee has a patio which is shaped like a right triangle. The base of the triangle is 36 feet and the height is 12 feet. What is the area of the patio?

The area is _____ square feet.

5. A small park is shaped like a right triangle. The base of the triangle is 160 yards and the height is 120 yards. What is the area of the park?

The area is _____ square yards.

6. Nelson has a piece of sheet metal which is shaped like a right triangle. The base of the triangle is 16 inches and the height is $12\frac{1}{2}$ inches. What is the area of the piece of sheet metal?

The area is _____ square inches.

7. Mrs. Jones has a piece of material which is shaped like a right triangle. The base of the triangle is $25\frac{1}{2}$ inches and the height is 18 inches. What is the area of the piece of material?

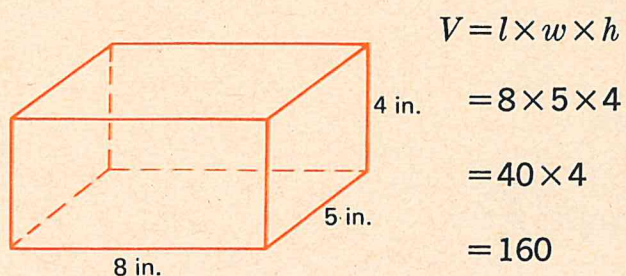
The area is _____ square inches.

Check your answers. Record your score.

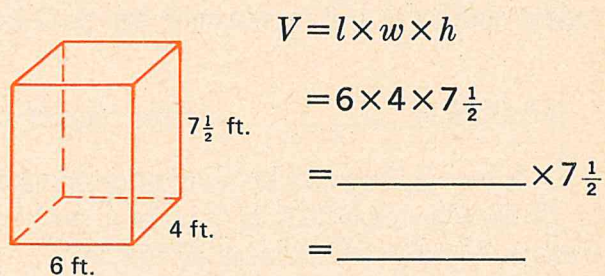
Perfect score: 7 My score: _____

Measurement—Volume

To determine the *volume measure* (V) of a rectangular solid, find the product of the measure of its *length* (l), the measure of its *width* (w), and the measure of its *height* (h).



The volume is 160 cubic inches (cu. in.)



The volume is _____ cubic feet (cu. ft.)

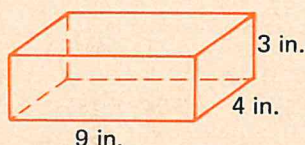
Find the volume of each rectangular solid below.

a

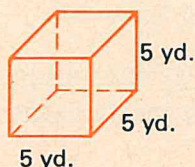
b

c

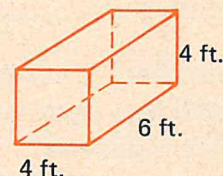
1.



_____ cu. in.

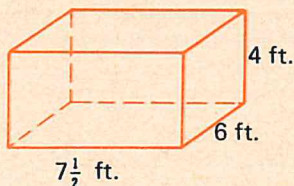


_____ cu. yd.

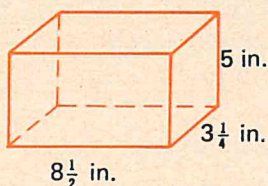


_____ cu. ft.

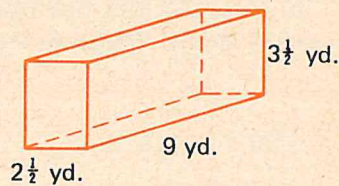
2.



_____ cu. ft.



_____ cu. in.



_____ cu. yd.

Find the volume of each rectangular solid described below.

	length	width	height	volume
3.	8 ft.	3 ft.	4 ft.	_____ cu. ft.
4.	4 yd.	3 yd.	$2\frac{1}{2}$ yd.	_____ cu. yd.
5.	$4\frac{1}{4}$ in.	3 in.	$3\frac{3}{4}$ in.	_____ cu. in.
6.	$7\frac{1}{2}$ ft.	$6\frac{1}{2}$ ft.	5 ft.	_____ cu. ft.
7.	$5\frac{1}{2}$ in.	$3\frac{1}{2}$ in.	4 in.	_____ cu. in.

Check your answers. Record your score.

Perfect score: 11

My score: _____

Problems

Solve each problem.

1. A rectangular-shaped swimming pool is 45 feet long and 30 feet wide. The pool is 8 feet deep. How many cubic feet of water will the pool hold?

It will hold _____ cubic feet of water.

2. A box is shaped like a rectangular solid. Its length is 12 inches, its width is 4 inches, and its height is 6 inches. What is the volume of the box?

The volume is _____ cubic inches.

3. A school room is 32 feet long, 24 feet wide, and 10 feet high. What is the volume of the room?

The volume is _____ cubic feet.

4. In building a basement a hole 32 feet long, 24 feet wide, and 6 feet deep was dug. How many cubic feet of earth were removed?

_____ cubic feet of earth were removed.

5. A cigar box is 8 inches long, 4 inches wide, and $2\frac{1}{2}$ inches deep. What is the volume of the box?

The volume is _____ cubic inches.

6. A trench is to be 60 yards long, 2 yards wide, and 2 yards deep. How much earth must be removed?

_____ cubic yards of earth must be removed.

7. A box car is 45 feet long, 8 feet wide, and $7\frac{1}{2}$ feet high. What is the volume of the box car?

The volume is _____ cubic feet.

8. A glass case is 32 inches long, $12\frac{1}{2}$ inches wide, and $42\frac{1}{2}$ inches high. What is the volume of the case?

The volume is _____ cubic inches.

Check your answers. Record your score.

Perfect score: 8

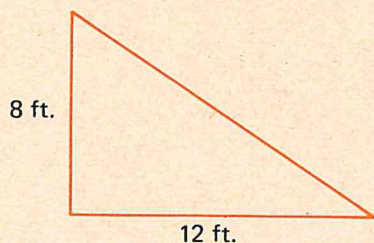
My score: _____

Area and Volume

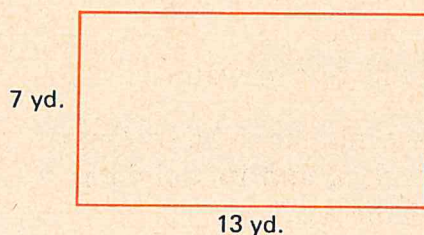
Find the area of each right triangle or rectangle below.

*a**b**c*

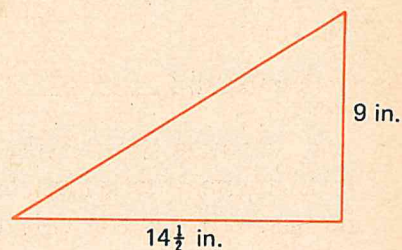
1.



_____ sq. ft.

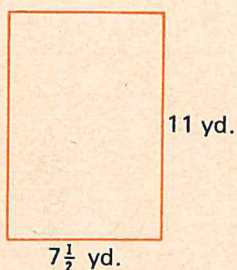


_____ sq. yd.

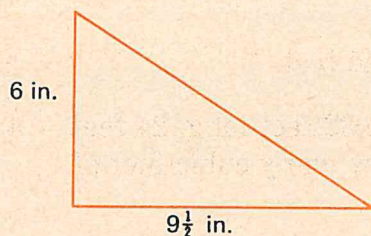


_____ sq. in.

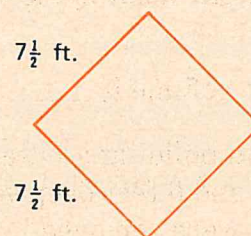
2.



_____ sq. yd.



_____ sq. in.



_____ sq. ft.

Find the volume of each rectangular solid described below.

	<i>length</i>	<i>width</i>	<i>height</i>	<i>volume</i>
3.	7 yd.	5 yd.	3 yd.	_____ cu. yd.
4.	9 in.	5 in.	4 $\frac{1}{2}$ in.	_____ cu. in.
5.	6 ft.	3 $\frac{1}{4}$ ft.	9 ft.	_____ cu. ft.
6.	5 $\frac{1}{2}$ yd.	3 yd.	7 yd.	_____ cu. yd.
7.	3 $\frac{1}{4}$ in.	2 $\frac{3}{4}$ in.	4 in.	_____ cu. in.
8.	6 $\frac{1}{2}$ ft.	5 ft.	4 $\frac{1}{2}$ ft.	_____ cu. ft.
9.	3 in.	5 $\frac{1}{4}$ in.	3 $\frac{1}{2}$ in.	_____ cu. in.
10.	9 $\frac{1}{4}$ ft.	8 $\frac{3}{4}$ ft.	5 ft.	_____ cu. ft.

Check your answers. Record your score.

Perfect score: 14

My score: _____

Problems

Solve each problem.

1. A basketball court is shaped like a rectangle. The length is 84 feet and the width is 50 feet. What is the area of the court?

The area is _____ square feet.

2. A garden plot is shaped like a right triangle. The base of the triangle is 50 feet and the height is 18 feet. What is the area of the triangle?

The area is _____ square feet.

3. A suitcase is 32 inches long, 16 inches wide, and 6 inches deep. What is the volume of the suitcase?

The volume is _____ cubic inches.

4. Mrs. Langley has a flower bed which is shaped like a right triangle. The base of the triangle is $12\frac{1}{2}$ feet and the height is 6 feet. What is the area of the flower bed?

The area is _____ square feet.

5. A plot of land is shaped like a rectangle. It is 280 yards long and 90 yards wide. What is the area of the plot?

The area is _____ square yards.

6. A box is 9 inches long, $6\frac{1}{2}$ inches wide, and $1\frac{1}{2}$ inches deep. What is the volume of the box?

The volume is _____ cubic inches.

7. A rectangular tabletop is 72 inches long and 36 inches wide. What is the area of the tabletop?

The area is _____ square inches.

8. A brick is 8 inches long, 3 inches wide, and 2 inches high. How much space does the brick occupy?

The brick occupies _____ cubic inches of space.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

TEST—Measurement

Complete the following.

*a**b*

- | | |
|-------------------------|-----------------------------|
| 1. 72 in. = _____ ft. | 7 ft. 8 in. = _____ in. |
| 2. 5 yd. = _____ ft. | 5 yd. 1 ft. = _____ ft. |
| 3. 144 in. = _____ yd. | 3 hr. 35 min. = _____ min. |
| 4. 3 min. = _____ sec. | 4 min. 45 sec. = _____ sec. |
| 5. 240 min. = _____ hr. | 2 da. 8 hr. = _____ hr. |
| 6. 4 qt. = _____ pt. | 2 qt. 1 pt. = _____ pt. |
| 7. 24 qt. = _____ gal. | 4 gal. 3 qt. = _____ qt. |
| 8. 10 pt. = _____ qt. | 3 pt. 1 c. = _____ c. |

Find the area of each rectangle described below.

	<i>length</i>	<i>width</i>	<i>area</i>
9.	6 ft.	12 ft.	_____ sq. ft.
10.	9 in.	$7\frac{1}{2}$ in.	_____ sq. in.
11.	$2\frac{1}{2}$ yd.	$1\frac{1}{2}$ yd.	_____ sq. yd.

Find the area of each right triangle described below.

	<i>base</i>	<i>height</i>	<i>area</i>
12.	13 yd.	9 yd.	_____ sq. yd.
13.	$8\frac{1}{2}$ ft.	7 ft.	_____ sq. ft.
14.	$5\frac{1}{2}$ in.	4 in.	_____ sq. in.

Find the volume of each rectangular solid described below.

	<i>length</i>	<i>width</i>	<i>height</i>	<i>volume</i>
15.	$14\frac{1}{2}$ ft.	6 ft.	3 ft.	_____ cu. ft.
16.	16 yd.	$2\frac{1}{2}$ yd.	2 yd.	_____ cu. yd.
17.	$3\frac{1}{2}$ in.	2 in.	$1\frac{1}{2}$ in.	_____ cu. in.

Check your answers. Record your score.

Perfect score: 25

My score: _____

PRE-TEST—Addition and Subtraction

Express each fraction or mixed numeral as a decimal.

1. $\frac{7}{10} =$ $3\frac{19}{100} =$ $5\frac{25}{1000} =$

Change each of the following to a decimal as indicated.

2. Change $\frac{4}{5}$ to tenths. Change $3\frac{8}{25}$ to hundredths. Change $3\frac{16}{125}$ to thousandths.

Express each decimal as a fraction or mixed numeral in simplest form.

3. $.8$ 9.33 16.125

Add or subtract.

4. $\begin{array}{r} .6 \\ +.2 \\ \hline \end{array}$ $\begin{array}{r} .72 \\ +.35 \\ \hline \end{array}$ $\begin{array}{r} 5.382 \\ +2.641 \\ \hline \end{array}$ $\begin{array}{r} 5.018 \\ 3.246 \\ +5.812 \\ \hline \end{array}$

5. $\begin{array}{r} 4.6 \\ -3.5 \\ \hline \end{array}$ $\begin{array}{r} 5.05 \\ -4.29 \\ \hline \end{array}$ $\begin{array}{r} .456 \\ -.018 \\ \hline \end{array}$ $\begin{array}{r} 12.038 \\ -1.764 \\ \hline \end{array}$

6. $\begin{array}{r} .7 \\ +.38 \\ \hline \end{array}$ $\begin{array}{r} .256 \\ +.83 \\ \hline \end{array}$ $\begin{array}{r} 1.7 \\ +5.825 \\ \hline \end{array}$ $\begin{array}{r} 3.4 \\ 42.018 \\ +.79 \\ \hline \end{array}$

7. $\begin{array}{r} .42 \\ -.1 \\ \hline \end{array}$ $\begin{array}{r} 4.56 \\ -1.243 \\ \hline \end{array}$ $\begin{array}{r} 5.8 \\ -2.25 \\ \hline \end{array}$ $\begin{array}{r} 16.36 \\ -16.075 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 25

My score: _____

Tenths

Numerals like .4, 4.1, and 5.4 are called **decimals**.

$$\frac{1}{10} = .1$$

one tenth
or
point one

$$.4 = \frac{4}{10}$$

$$\frac{3}{10} = \underline{\hspace{2cm}}$$

decimal
points

$$4\frac{1}{10} = 4.1$$

four and one tenth
or
four point one

$$5.4 = 5\frac{4}{10}$$

$$2\frac{3}{10} = \underline{\hspace{2cm}}$$

Express each fraction or mixed numeral as a decimal.

*a**b**c**d*

1. $\frac{6}{10} = \underline{\hspace{2cm}}$

$\frac{2}{10} = \underline{\hspace{2cm}}$

$\frac{8}{10} = \underline{\hspace{2cm}}$

$\frac{5}{10} = \underline{\hspace{2cm}}$

2. $4\frac{7}{10} = \underline{\hspace{2cm}}$

$5\frac{9}{10} = \underline{\hspace{2cm}}$

$18\frac{2}{10} = \underline{\hspace{2cm}}$

$423\frac{6}{10} = \underline{\hspace{2cm}}$

Express each decimal as a fraction or mixed numeral.

3. $.7 = \underline{\hspace{2cm}}$

$.3 = \underline{\hspace{2cm}}$

$.1 = \underline{\hspace{2cm}}$

$.9 = \underline{\hspace{2cm}}$

4. $4.9 = \underline{\hspace{2cm}}$

$12.7 = \underline{\hspace{2cm}}$

$15.1 = \underline{\hspace{2cm}}$

$217.3 = \underline{\hspace{2cm}}$

Write a decimal for each of the following.

*a**b*

5. eight tenths $\underline{\hspace{2cm}}$

three and seven tenths $\underline{\hspace{2cm}}$

6. point four $\underline{\hspace{2cm}}$

twenty five point eight $\underline{\hspace{2cm}}$

7. five tenths $\underline{\hspace{2cm}}$

one hundred and six tenths $\underline{\hspace{2cm}}$

Express each decimal in words.

8. $.9$ $\underline{\hspace{10cm}}$

9. 3.7 $\underline{\hspace{10cm}}$

10. 21.2 $\underline{\hspace{10cm}}$

Check your answers. Record your score.

Perfect score: 25

My score: $\underline{\hspace{2cm}}$

Hundredths

$$\frac{1}{100} = .01 \begin{cases} \text{one hundredth} \\ \text{or} \\ \text{point zero one} \end{cases}$$

$$.15 = \frac{15}{100}$$

$$\frac{9}{100} = \underline{\hspace{2cm}}$$

$$3\frac{12}{100} = 3.12 \begin{cases} \text{three and twelve hundredths} \\ \text{or} \\ \text{three point one two} \end{cases}$$

$$2.07 = \frac{207}{100}$$

$$1\frac{14}{100} = \underline{\hspace{2cm}}$$

Express each fraction or mixed numeral as a decimal naming hundredths.

a

b

c

1. $\frac{8}{100} = \underline{\hspace{2cm}}$

$$\frac{16}{100} = \underline{\hspace{2cm}}$$

$$\frac{5}{100} = \underline{\hspace{2cm}}$$

2. $1\frac{36}{100} = \underline{\hspace{2cm}}$

$$8\frac{6}{100} = \underline{\hspace{2cm}}$$

$$9\frac{12}{100} = \underline{\hspace{2cm}}$$

3. $12\frac{45}{100} = \underline{\hspace{2cm}}$

$$43\frac{67}{100} = \underline{\hspace{2cm}}$$

$$26\frac{4}{100} = \underline{\hspace{2cm}}$$

4. $142\frac{8}{100} = \underline{\hspace{2cm}}$

$$436\frac{42}{100} = \underline{\hspace{2cm}}$$

$$389\frac{89}{100} = \underline{\hspace{2cm}}$$

Express each decimal as a fraction or mixed numeral.

5. $.17 = \underline{\hspace{2cm}}$

$$.03 = \underline{\hspace{2cm}}$$

$$.41 = \underline{\hspace{2cm}}$$

6. $5.19 = \underline{\hspace{2cm}}$

$$6.47 = \underline{\hspace{2cm}}$$

$$5.01 = \underline{\hspace{2cm}}$$

7. $21.07 = \underline{\hspace{2cm}}$

$$23.99 = \underline{\hspace{2cm}}$$

$$44.89 = \underline{\hspace{2cm}}$$

8. $142.33 = \underline{\hspace{2cm}}$

$$483.03 = \underline{\hspace{2cm}}$$

$$185.63 = \underline{\hspace{2cm}}$$

Write a decimal for each of the following.

a

b

9. eight hundredths $\underline{\hspace{2cm}}$

six and twenty-three hundredths $\underline{\hspace{2cm}}$

10. ninety-five hundredths $\underline{\hspace{2cm}}$

fourteen and sixty hundredths $\underline{\hspace{2cm}}$

11. point four eight $\underline{\hspace{2cm}}$

four point four four $\underline{\hspace{2cm}}$

Check your answers. Record your score.

Perfect score: 30 My score: $\underline{\hspace{2cm}}$

Thousandths

$$\frac{1}{1000} = .001 \begin{cases} \text{one thousandth} \\ \text{or} \\ \text{point zero zero one} \end{cases}$$

$$.125 = \frac{125}{1000} \quad \frac{14}{1000} = \underline{\hspace{2cm}}$$

$$2\frac{12}{1000} = 2.012 \begin{cases} \text{two and twelve thousandths} \\ \text{or} \\ \text{two point zero one two} \end{cases}$$

$$5.009 = 5\frac{9}{1000} \quad 3\frac{135}{1000} = \underline{\hspace{2cm}}$$

Express each fraction or mixed numeral as a decimal naming thousandths.

*a**b**c*

$$1. \quad \frac{8}{1000} = \underline{\hspace{2cm}} \quad \frac{17}{1000} = \underline{\hspace{2cm}} \quad \frac{54}{1000} = \underline{\hspace{2cm}}$$

$$2. \quad \frac{125}{1000} = \underline{\hspace{2cm}} \quad \frac{430}{1000} = \underline{\hspace{2cm}} \quad \frac{306}{1000} = \underline{\hspace{2cm}}$$

$$3. \quad 4\frac{4}{1000} = \underline{\hspace{2cm}} \quad 3\frac{41}{1000} = \underline{\hspace{2cm}} \quad 6\frac{183}{1000} = \underline{\hspace{2cm}}$$

$$4. \quad 35\frac{78}{1000} = \underline{\hspace{2cm}} \quad 42\frac{19}{1000} = \underline{\hspace{2cm}} \quad 196\frac{6}{1000} = \underline{\hspace{2cm}}$$

Express each decimal as a fraction or mixed numeral.

$$5. \quad .009 = \underline{\hspace{2cm}} \quad .019 = \underline{\hspace{2cm}} \quad .003 = \underline{\hspace{2cm}}$$

$$6. \quad .123 = \underline{\hspace{2cm}} \quad .441 = \underline{\hspace{2cm}} \quad .219 = \underline{\hspace{2cm}}$$

$$7. \quad 4.011 = \underline{\hspace{2cm}} \quad 2.101 = \underline{\hspace{2cm}} \quad 6.001 = \underline{\hspace{2cm}}$$

$$8. \quad 36.037 = \underline{\hspace{2cm}} \quad 3.433 = \underline{\hspace{2cm}} \quad 100.001 = \underline{\hspace{2cm}}$$

Write a decimal for each of the following.

*a**b*

$$9. \quad \text{point zero five three} \quad \underline{\hspace{2cm}} \quad \text{ten and twelve thousandths} \quad \underline{\hspace{2cm}}$$

$$10. \quad \text{eleven thousandths} \quad \underline{\hspace{2cm}} \quad \text{twelve and eighteen thousandths} \quad \underline{\hspace{2cm}}$$

$$11. \quad \text{sixty-five thousandths} \quad \underline{\hspace{2cm}} \quad \text{twelve point one two three} \quad \underline{\hspace{2cm}}$$

Check your answers. Record your score.

Perfect score: 30 My score: _____

Changing Fractions and Mixed Numerals to Decimals

Change $\frac{1}{2}$ to tenths.

$$\begin{aligned}\frac{1}{2} &= \frac{1}{2} \times \frac{5}{5} \\ &= \frac{5}{10} \\ &= .5\end{aligned}$$

Change $\frac{1}{2}$ to hundredths.

$$\begin{aligned}\frac{1}{2} &= \frac{1}{2} \times \frac{50}{50} \\ &= \frac{50}{100} \\ &= .50\end{aligned}$$

Change $\frac{1}{2}$ to thousandths.

$$\begin{aligned}\frac{1}{2} &= \frac{1}{2} \times \frac{500}{500} \\ &= \frac{500}{1000} \\ &= .500\end{aligned}$$

Change $\frac{3}{4}$ to hundredths.

$$\begin{aligned}\frac{3}{4} &= \frac{3}{4} \times \frac{25}{25} \\ &= \frac{75}{100}\end{aligned}$$

Change $3\frac{48}{250}$ to thousandths.

$$\begin{aligned}3\frac{48}{250} &= 3 + \frac{48}{250} \\ &= 3 + \left(\frac{48}{250} \times \frac{4}{4}\right) \\ &= 3 + \frac{192}{1000} \\ &= 3\frac{192}{1000}\end{aligned}$$

= _____

= _____

Change each of the following to a decimal as indicated.

a

1. Change $\frac{3}{5}$ to tenths.

b

Change $\frac{3}{5}$ to hundredths.

c

Change $\frac{3}{5}$ to thousandths.

2. Change $3\frac{1}{2}$ to tenths.

Change $\frac{7}{25}$ to hundredths.

Change $2\frac{19}{100}$ to thousandths.

3. Change $2\frac{4}{5}$ to tenths.

Change $\frac{7}{20}$ to hundredths.

Change $\frac{7}{125}$ to thousandths.

4. Change $2\frac{1}{5}$ to tenths.

Change $\frac{19}{50}$ to hundredths.

Change $\frac{88}{250}$ to thousandths.

Check your answers. Record your score.

Perfect score: 12

My score: _____

NAME _____

Changing Decimals to Fractions or Mixed Numerals

$$.7 = \frac{7}{10}$$

$$.19 = \frac{19}{100}$$

$$.6 = \frac{6}{10} \text{ or } \frac{3}{5}$$

$$.14 = \frac{14}{100} \text{ or } \frac{7}{50}$$

$$4.2 = 4\frac{2}{10} \text{ or } 4\frac{1}{5}$$

$$3.01 = 3\frac{1}{100}$$

$$.051 = \underline{\hspace{2cm}}$$

$$.114 = \frac{114}{1000} \text{ or } \underline{\hspace{2cm}}$$

$$5.006 = 5\frac{6}{1000} \text{ or } \underline{\hspace{2cm}}$$

Express each decimal as a fraction or mixed numeral in simplest form.

*a**b**c**d*

1. .3

.1

.4

.5

2. 2.7

3.3

7.2

5.8

3. .17

.03

.15

.80

4. 5.07

8.43

4.05

2.44

5. .003

.017

.125

.045

6. 3.121

2.987

4.250

3.008

7. 4.35

.7

6.200

1.007

8. 2.6

3.24

.250

3.5

9. 5.125

.9

2.4

.04

10. .01

.051

.8

2.19

Check your answers. Record your score.

Perfect score: 40

My score: _____

Fractions, Mixed Numerals, and Decimals

Change each of the following to a decimal as indicated.

- | | | |
|-------------------------------------|--|---|
| <i>a</i> | <i>b</i> | <i>c</i> |
| 1. Change $\frac{1}{5}$ to tenths. | Change $\frac{7}{20}$ to hundredths. | Change $\frac{89}{200}$ to thousandths. |
| | | |
| 2. Change $7\frac{1}{2}$ to tenths. | Change $4\frac{29}{50}$ to hundredths. | Change $3\frac{9}{25}$ to thousandths. |

Express each decimal as a fraction or mixed numeral in simplest form.

- | | | | |
|----------|----------|----------|----------|
| <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
| 3. .9 | 3.6 | .35 | 17.75 |

- | | | | |
|---------|-------|--------|------|
| 4. .025 | 8.445 | 24.305 | 8.05 |
|---------|-------|--------|------|

Complete the following so the numerals in each row name the same number.

	<i>fractions or mixed numerals</i>	<i>decimals</i>		
		<i>tenths</i>	<i>hundredths</i>	<i>thousandths</i>
5.				.600
6.			2.70	
7.		5.4		
8.	$3\frac{1}{2}$			
9.		17.9		
10.			80.80	

Check your answers. Record your score.

Perfect score: 32

My score: _____

NAME _____

Addition

$$\begin{array}{r} \frac{6}{10} \\ + \frac{7}{10} \\ \hline \frac{13}{10} = 1 \frac{3}{10} \end{array}$$

$$\begin{array}{r} .6 \\ + .7 \\ \hline 1.3 \end{array}$$

$.6 + .7 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 3 \frac{56}{100} \\ + 4 \frac{24}{100} \\ \hline 7 \frac{80}{100} \end{array}$$

$$\begin{array}{r} 3.56 \\ + .03 \\ + 4.24 \\ \hline 7.83 \end{array}$$

$3.56 + .03 + 4.24 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 3 \frac{18}{1000} \\ + 14 \frac{9}{1000} \\ \hline 17 \frac{27}{1000} \end{array}$$

$$\begin{array}{r} 3.018 \\ + .142 \\ + 14.009 \\ \hline 17.169 \end{array}$$

$3.018 + .142 + 14.009 = \underline{\hspace{2cm}}$

Add.

1. $\begin{array}{r} a \\ .4 \\ + .5 \\ \hline \end{array}$

$\begin{array}{r} b \\ .9 \\ + .8 \\ \hline \end{array}$

$\begin{array}{r} c \\ 3.4 \\ + 9.2 \\ \hline \end{array}$

$\begin{array}{r} d \\ 19.3 \\ + 12.8 \\ \hline \end{array}$

$\begin{array}{r} e \\ 45.6 \\ + 6.8 \\ \hline \end{array}$

2. $\begin{array}{r} .42 \\ + .35 \\ \hline \end{array}$

$\begin{array}{r} .76 \\ + .48 \\ \hline \end{array}$

$\begin{array}{r} 3.32 \\ + 4.62 \\ \hline \end{array}$

$\begin{array}{r} 24.45 \\ + 72.36 \\ \hline \end{array}$

$\begin{array}{r} 58.92 \\ + 3.29 \\ \hline \end{array}$

3. $\begin{array}{r} .014 \\ + .231 \\ \hline \end{array}$

$\begin{array}{r} .456 \\ + .876 \\ \hline \end{array}$

$\begin{array}{r} 2.014 \\ + 2.325 \\ \hline \end{array}$

$\begin{array}{r} 3.457 \\ + 2.356 \\ \hline \end{array}$

$\begin{array}{r} 41.216 \\ + 2.007 \\ \hline \end{array}$

4. $\begin{array}{r} .5 \\ .6 \\ + .7 \\ \hline \end{array}$

$\begin{array}{r} 1.9 \\ 2.2 \\ + 3.4 \\ \hline \end{array}$

$\begin{array}{r} 3.4 \\ 1.7 \\ + 4.8 \\ \hline \end{array}$

$\begin{array}{r} 42.3 \\ 1.6 \\ + 2.9 \\ \hline \end{array}$

$\begin{array}{r} 3.4 \\ .8 \\ + 4.2 \\ \hline \end{array}$

5. $\begin{array}{r} .33 \\ .26 \\ + .41 \\ \hline \end{array}$

$\begin{array}{r} \$.43 \\ .54 \\ + .07 \\ \hline \end{array}$

$\begin{array}{r} 3.35 \\ 1.08 \\ + 6.11 \\ \hline \end{array}$

$\begin{array}{r} \$ 24.29 \\ 12.29 \\ + 5.31 \\ \hline \end{array}$

$\begin{array}{r} \$ 34.05 \\ 2.06 \\ + 1.08 \\ \hline \end{array}$

6. $\begin{array}{r} .012 \\ .304 \\ + .405 \\ \hline \end{array}$

$\begin{array}{r} .423 \\ .056 \\ + .217 \\ \hline \end{array}$

$\begin{array}{r} 3.056 \\ 1.452 \\ + 6.112 \\ \hline \end{array}$

$\begin{array}{r} 4.008 \\ 2.309 \\ + .012 \\ \hline \end{array}$

$\begin{array}{r} 35.157 \\ .448 \\ + 2.509 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 30

My score: _____

Problems

Solve each problem.

1. There was .8 inch of rain recorded on Monday, .5 inch on Tuesday, and .7 inch on Friday. How many inches of rain were recorded on those 3 days?

_____ inches were recorded.

2. In problem 1, how many inches of rain were recorded on Monday and Friday?

_____ inches were recorded.

3. A machinist has a bar that is 4.25 inches wide and another bar that is 3.78 inches wide. What is the combined width of the two bars?

The combined width is _____ inches.

4. One sheet of metal is .28 inch thick. Another is .35 inch thick. What would be the combined thickness of these sheets?

The total thickness would be _____ inch.

5. Three sheets of metal are to be placed on top of each other. Their thicknesses are .125 inch, .018 inch, and .075 inch. What would be the combined thickness of all three pieces?

The combined thickness would be _____ inch.

6. Box A weighs 1.4 pounds, box B weighs 3.2 pounds, and box C weighs 2.5 pounds. What is the combined weight of box A and box C?

The combined weight is _____ pounds.

7. In problem 6, what is the combined weight of all three boxes?

The combined weight is _____ pounds.

8. Mary Ann made three purchases at the store. The amounts were \$13.75; \$1.42; and \$.83. What was the total amount of all three purchases?

The total amount was \$_____.

Check your answers. Record your score.

Perfect score: 8

My score: _____

NAME _____

Addition

$$\begin{array}{r} .8 \\ + .39 \\ \hline \end{array}$$

8 = $\frac{80}{100}$ → .80

$$\begin{array}{r} .80 \\ + .39 \\ \hline 1.19 \end{array}$$

$.8 + .39 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 4.2 \\ 3.018 \\ + .82 \\ \hline \end{array}$$

4.2 = $4\frac{2}{10} = 4\frac{200}{1000}$ → 4.200

.82 = $\frac{82}{100} = \frac{820}{1000}$ → .820

$$\begin{array}{r} 4.200 \\ 3.018 \\ + .820 \\ \hline 8.038 \end{array}$$

$4.2 + 3.018 + .82 = \underline{\hspace{2cm}}$

Add. If necessary, use **O's** as shown in the examples.

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. $\begin{array}{r} .9 \\ + .42 \\ \hline \end{array}$	$\begin{array}{r} .83 \\ + .4 \\ \hline \end{array}$	$\begin{array}{r} .6 \\ + .401 \\ \hline \end{array}$	$\begin{array}{r} .72 \\ + .423 \\ \hline \end{array}$	$\begin{array}{r} .645 \\ + .2 \\ \hline \end{array}$

2. $\begin{array}{r} 2.75 \\ + 3.308 \\ \hline \end{array}$	$\begin{array}{r} 5.54 \\ + 7.6 \\ \hline \end{array}$	$\begin{array}{r} 3.8 \\ + .316 \\ \hline \end{array}$	$\begin{array}{r} .29 \\ + 8.043 \\ \hline \end{array}$	$\begin{array}{r} 29.5 \\ + 4.93 \\ \hline \end{array}$
---	--	--	---	---

3. $\begin{array}{r} .42 \\ .8 \\ + .018 \\ \hline \end{array}$	$\begin{array}{r} .31 \\ .2 \\ + .45 \\ \hline \end{array}$	$\begin{array}{r} .76 \\ .82 \\ + .9 \\ \hline \end{array}$	$\begin{array}{r} .431 \\ .2 \\ + .45 \\ \hline \end{array}$	$\begin{array}{r} .5 \\ .316 \\ + .099 \\ \hline \end{array}$
---	---	---	--	---

4. $\begin{array}{r} 3.182 \\ 1.34 \\ + 2.6 \\ \hline \end{array}$	$\begin{array}{r} 4.72 \\ 5.8 \\ + 6.317 \\ \hline \end{array}$	$\begin{array}{r} 7.426 \\ 3.318 \\ + .2 \\ \hline \end{array}$	$\begin{array}{r} .731 \\ 8.45 \\ + 2.28 \\ \hline \end{array}$	$\begin{array}{r} .3 \\ .384 \\ + 9.42 \\ \hline \end{array}$
--	---	---	---	---

Complete the following.

*a**b*

5. $.8 + .91 = \underline{\hspace{2cm}}$

$.4 + .016 + .75 = \underline{\hspace{2cm}}$

6. $.58 + .114 = \underline{\hspace{2cm}}$

$.32 + .42 + .113 = \underline{\hspace{2cm}}$

7. $.9 + .301 = \underline{\hspace{2cm}}$

$4.8 + 3.21 + .014 = \underline{\hspace{2cm}}$

8. $2.4 + .31 = \underline{\hspace{2cm}}$

$5.24 + .016 + 21.3 = \underline{\hspace{2cm}}$

Check your answers. Record your score.

Perfect score: 28

My score: _____

Problems

Solve each problem.

1. There was .75 inch of rain recorded at Elmhurst, .50 inch at River Forest, and .25 inch at Harvey. What amount of rain was recorded at both Elmhurst and River Forest?

The total amount was _____ inches of rain.

2. In problem 1, how much rain was recorded at all three locations?

_____ inches were recorded.

3. An opening in an engine part is supposed to be 1.150 inches. The part is acceptable if the opening is as much as .075 inch larger or smaller than what it is supposed to be. What is the largest opening that would be acceptable?

The largest opening would be _____ inches.

4. Assume the opening in problem 3 can only be as much as .025 inch larger than what it is supposed to be. What is the largest acceptable opening?

The largest opening would be _____ inches.

5. Adra saved \$23.05. Betty saved \$40. Clare saved \$3.50. How much have all three saved?

All three have saved a total of _____.

6. In problem 5, how much have Adra and Clare saved?

They have saved _____.

7. In problem 5, how much have Betty and Clare saved?

They have saved _____.

8. Marlene was asked to find the sum of 1.9; 3.52; and .075. What should her answer be?

Her answer should be _____.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Subtraction

$\begin{array}{r} 4.3 \\ -1.6 \\ \hline \end{array}$	$\begin{array}{r} 4\frac{3}{10} \rightarrow 3\frac{13}{10} \\ -1\frac{6}{10} \rightarrow -1\frac{6}{10} \\ \hline 2\frac{7}{10} \rightarrow 2.7 \end{array}$	$\begin{array}{r} 4.3 \\ -1.6 \\ \hline 2.7 \end{array}$	$\begin{array}{r} 42.753 \\ -5.327 \\ \hline 37.426 \end{array}$
4.3 - 1.6 = _____		42.753 - 5.327 = _____	

When subtracting with decimals, rename as you do when subtracting whole numbers.

Subtract.

- | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> |
|--|---|---|--|--|
| 1. $\begin{array}{r} .7 \\ - .3 \\ \hline \end{array}$ | $\begin{array}{r} .9 \\ - .2 \\ \hline \end{array}$ | $\begin{array}{r} .6 \\ - .2 \\ \hline \end{array}$ | $\begin{array}{r} .9 \\ - .1 \\ \hline \end{array}$ | $\begin{array}{r} .8 \\ - .5 \\ \hline \end{array}$ |
| 2. $\begin{array}{r} .42 \\ - .31 \\ \hline \end{array}$ | $\begin{array}{r} .56 \\ - .23 \\ \hline \end{array}$ | $\begin{array}{r} .07 \\ - .02 \\ \hline \end{array}$ | $\begin{array}{r} .85 \\ - .37 \\ \hline \end{array}$ | $\begin{array}{r} \$.52 \\ - .37 \\ \hline \end{array}$ |
| 3. $\begin{array}{r} .345 \\ - .234 \\ \hline \end{array}$ | $\begin{array}{r} .548 \\ - .259 \\ \hline \end{array}$ | $\begin{array}{r} .815 \\ - .607 \\ \hline \end{array}$ | $\begin{array}{r} .828 \\ - .389 \\ \hline \end{array}$ | $\begin{array}{r} .754 \\ - .375 \\ \hline \end{array}$ |
| 4. $\begin{array}{r} 4.6 \\ - 3.2 \\ \hline \end{array}$ | $\begin{array}{r} 7.4 \\ - 2.8 \\ \hline \end{array}$ | $\begin{array}{r} 8.6 \\ - 3.7 \\ \hline \end{array}$ | $\begin{array}{r} 5.6 \\ - .7 \\ \hline \end{array}$ | $\begin{array}{r} 19.2 \\ - .9 \\ \hline \end{array}$ |
| 5. $\begin{array}{r} 4.36 \\ - 1.23 \\ \hline \end{array}$ | $\begin{array}{r} \$6.55 \\ - 2.73 \\ \hline \end{array}$ | $\begin{array}{r} 4.08 \\ - .39 \\ \hline \end{array}$ | $\begin{array}{r} \$15.32 \\ - 2.67 \\ \hline \end{array}$ | $\begin{array}{r} \$4.09 \\ - .32 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 4.213 \\ - 2.001 \\ \hline \end{array}$ | $\begin{array}{r} 3.624 \\ - 1.415 \\ \hline \end{array}$ | $\begin{array}{r} 4.307 \\ - 1.495 \\ \hline \end{array}$ | $\begin{array}{r} 26.345 \\ - 2.543 \\ \hline \end{array}$ | $\begin{array}{r} 15.108 \\ - 3.912 \\ \hline \end{array}$ |
| 7. $\begin{array}{r} 15.3 \\ - 4.9 \\ \hline \end{array}$ | $\begin{array}{r} 6.23 \\ - 3.75 \\ \hline \end{array}$ | $\begin{array}{r} 14.21 \\ - 7.08 \\ \hline \end{array}$ | $\begin{array}{r} 3.002 \\ - 1.047 \\ \hline \end{array}$ | $\begin{array}{r} 19.801 \\ - 7.413 \\ \hline \end{array}$ |

Check your answers. Record your score.

Perfect score: 35 My score: _____

Problems

Solve each problem.

1. Fran is to mix .8 pound of chemical A, .6 pound of chemical B, and .3 pound of chemical C. How much more of chemical A is to be used than chemical B?

_____ pound more of chemical A is to be used.

2. In problem 1, how much more of chemical A than chemical C is to be used?

_____ pound more of chemical A is to be used.

3. The spark plug John checked had an opening of .042 inch. The opening should be .035 inch. How much too wide is the opening of the plug?

The opening is _____ inch too wide.

4. Suppose the opening checked in problem 3 was .015 inch. How much too narrow is the opening?

The opening is _____ inch too narrow.

5. Three sheets of metal were placed together. Their total thickness was 4.525 inches. Then a sheet 1.750 inches thick was removed. What was the combined thickness of the remaining sheets?

It is _____ inches thick.

6. The distance between two terminals on a television part is supposed to be 2.45 inches. The part is acceptable if the distance is .05 inches more or less than what it is supposed to be. What is the least distance that would be acceptable?

The least distance would be _____ inches.

7. One box of nails weighs 3.4 pounds and another box weighs 5.2 pounds. How much more does the heavier box weigh?

The heavier box weighs _____ pounds more.

Check your answers. Record your score.

Perfect score: 7

My score: _____

NAME _____

Subtraction

$$\begin{array}{r}
 6.432 \longrightarrow 6.432 \longrightarrow \overset{5\ 14}{\cancel{6.432}} \\
 -1.7 \longrightarrow -1.700 \longrightarrow -1.700 \\
 \hline
 4.732
 \end{array}$$

$$6.432 - 1.7 = \underline{\hspace{2cm}}$$

It is not necessary to use **O's** in problems like this.

$$\begin{array}{r}
 6.4 \longrightarrow 6.40 \longrightarrow \overset{3\ 10}{\cancel{6.40}} \\
 -1.23 \longrightarrow -1.23 \longrightarrow -1.23 \\
 \hline
 5.17
 \end{array}$$

$$6.4 - 1.23 = \underline{\hspace{2cm}}$$

It is helpful to use **O's** in problems like this.

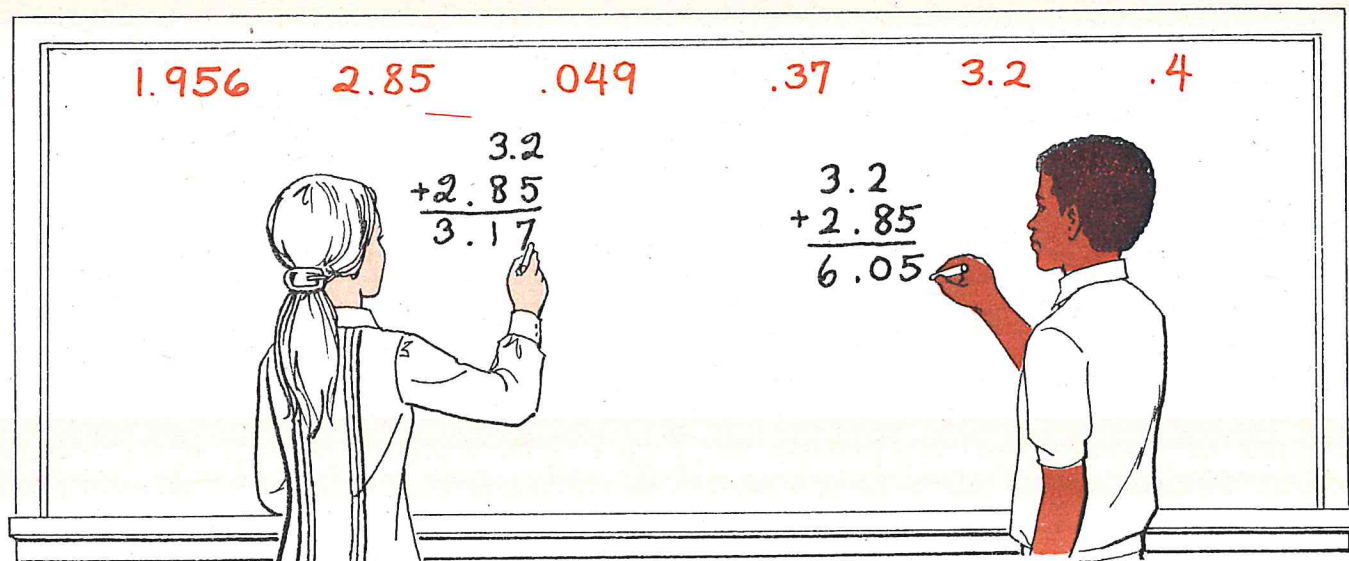
Subtract.

- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> |
|----|---|---|--|---|--|
| 1. | $\begin{array}{r} .7\ 2 \\ - .2 \\ \hline \end{array}$ | $\begin{array}{r} 3.5\ 6 \\ - 1.4 \\ \hline \end{array}$ | $\begin{array}{r} 5.3\ 8 \\ - 2.7 \\ \hline \end{array}$ | $\begin{array}{r} 4.3\ 1\ 6 \\ - 1.1 \\ \hline \end{array}$ | $\begin{array}{r} 2.1\ 4\ 6 \\ - 1.5 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} .5\ 2\ 3 \\ - .4\ 1 \\ \hline \end{array}$ | $\begin{array}{r} .6\ 8\ 3 \\ - .3\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 5.4\ 2\ 1 \\ - .5\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 3.0\ 1\ 8 \\ - .2\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 4.0\ 1\ 2 \\ - 3.0\ 3 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} .8 \\ - .3\ 5 \\ \hline \end{array}$ | $\begin{array}{r} .5 \\ - .2\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 6.3 \\ - 1.1\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 7.4 \\ - 2.7\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 1\ 4.3 \\ - 6.7\ 2 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} .9 \\ - .3\ 0\ 9 \\ \hline \end{array}$ | $\begin{array}{r} .3 \\ - .1\ 7\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 4.4 \\ - 2.3\ 5\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 6.3 \\ - 3.4\ 3\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 1\ 8.2 \\ - 7.5\ 1\ 4 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} .7\ 5 \\ - .3\ 1\ 4 \\ \hline \end{array}$ | $\begin{array}{r} .3\ 6 \\ - .2\ 7\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 5.7\ 2 \\ - 1.3\ 1\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 4.3\ 8 \\ - .5\ 9\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 1\ 6.9\ 2 \\ - 6.3\ 8\ 4 \\ \hline \end{array}$ |
| 6. | $\begin{array}{r} 3\ 4.2\ 6\ 5 \\ - 2.1\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 4\ 2.1\ 6 \\ - 3.2\ 3\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 4\ 2.2 \\ - 3.1\ 6\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 2\ 6.3 \\ - 2.4\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 3.1\ 0\ 6 \\ - 2.0\ 3 \\ \hline \end{array}$ |
| 7. | $\begin{array}{r} 4\ 3.7 \\ - 6.1\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 3\ 9\ 4.6 \\ - 7\ 5.8\ 1 \\ \hline \end{array}$ | $\begin{array}{r} 5.2\ 1\ 6 \\ - 4.1\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 8\ 2.4\ 5 \\ - 3.7\ 8\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 9\ 2.4\ 0\ 5 \\ - 3.0\ 0\ 8 \\ \hline \end{array}$ |

Check your answers. Record your score.

Perfect score: 35 My score: _____

Problems



Solve each problem.

1. Mr. Prinkle told the pupils to find the sum of the two greatest numbers named in color on the board. Kay and Ralph did their work at the board. Who worked the problem correctly? What is the correct answer?

_____ worked the problem correctly.

The correct answer is _____.

2. Next the pupils were to find the difference between the two greatest numbers named. What should the answer be?

The answer should be _____.

3. Next they were to find the sum of the three greatest numbers named. What should the answer be?

The answer should be _____.

4. Then they were to find the sum of the three least numbers named. What should the answer be?

The answer should be _____.

5. Finally the pupils were to find the difference between the sum of the three greatest numbers and the sum of the three least numbers. What should the answer be?

The answer should be _____.

1.

2.

3.

4.

5.

Check your answers. Record your score.

Perfect score: 6

My score: _____

TEST—Addition and Subtraction

Express each fraction or mixed numeral as a decimal.

$$1. \quad \overset{a}{\frac{175}{1000}} = \underline{\hspace{2cm}}$$

$$\overset{b}{9\frac{4}{10}} = \underline{\hspace{2cm}}$$

$$\overset{c}{3\frac{8}{100}} = \underline{\hspace{2cm}}$$

Change each of the following to a decimal as indicated.

$$2. \quad \text{Change } \frac{9}{10} \text{ to hundredths.}$$

$$\text{Change } 3\frac{1}{5} \text{ to tenths.}$$

$$\text{Change } 5\frac{75}{250} \text{ to thousandths.}$$

Express each decimal as a fraction or mixed numeral in simplest form.

$$3. \quad \overset{a}{.075}$$

$$\overset{b}{8.6}$$

$$\overset{c}{16.49}$$

Add or subtract.

$$4. \quad \begin{array}{r} \overset{a}{.9} \\ + .4 \\ \hline \end{array}$$

$$\begin{array}{r} \overset{b}{.52} \\ + .43 \\ \hline \end{array}$$

$$\begin{array}{r} \overset{c}{6.534} \\ + 7.827 \\ \hline \end{array}$$

$$\begin{array}{r} \overset{d}{9.308} \\ 21.295 \\ + .043 \\ \hline \end{array}$$

$$5. \quad \begin{array}{r} 3.3 \\ - 1.6 \\ \hline \end{array}$$

$$\begin{array}{r} 8.24 \\ - 3.73 \\ \hline \end{array}$$

$$\begin{array}{r} .442 \\ - .375 \\ \hline \end{array}$$

$$\begin{array}{r} 18.042 \\ - 12.345 \\ \hline \end{array}$$

$$6. \quad \begin{array}{r} .42 \\ + .9 \\ \hline \end{array}$$

$$\begin{array}{r} .35 \\ + .065 \\ \hline \end{array}$$

$$\begin{array}{r} 3.6 \\ + 14.673 \\ \hline \end{array}$$

$$\begin{array}{r} 9.2 \\ 4.375 \\ + 43.78 \\ \hline \end{array}$$

$$7. \quad \begin{array}{r} .546 \\ - .38 \\ \hline \end{array}$$

$$\begin{array}{r} 3.8 \\ - 1.21 \\ \hline \end{array}$$

$$\begin{array}{r} 7.22 \\ - 4.436 \\ \hline \end{array}$$

$$\begin{array}{r} 8.4 \\ - 3.575 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 25

My score: _____

PRE-TEST—Multiplication

Complete the following.

a

b

c

d

1. $5 \times .7 = \underline{\hspace{2cm}}$ $2 \times .4 = \underline{\hspace{2cm}}$ $.9 \times 4 = \underline{\hspace{2cm}}$ $.3 \times 4 = \underline{\hspace{2cm}}$

2. $6 \times .07 = \underline{\hspace{2cm}}$ $3 \times .02 = \underline{\hspace{2cm}}$ $.04 \times 8 = \underline{\hspace{2cm}}$ $.09 \times 8 = \underline{\hspace{2cm}}$

3. $4 \times .003 = \underline{\hspace{2cm}}$ $8 \times .001 = \underline{\hspace{2cm}}$ $.003 \times 2 = \underline{\hspace{2cm}}$ $.001 \times 4 = \underline{\hspace{2cm}}$

4. $.3 \times .7 = \underline{\hspace{2cm}}$ $.4 \times .2 = \underline{\hspace{2cm}}$ $.6 \times .4 = \underline{\hspace{2cm}}$ $.6 \times .9 = \underline{\hspace{2cm}}$

5. $.8 \times .06 = \underline{\hspace{2cm}}$ $.5 \times .01 = \underline{\hspace{2cm}}$ $.03 \times .2 = \underline{\hspace{2cm}}$ $.07 \times 8 = \underline{\hspace{2cm}}$

6. $.09 \times .03 = \underline{\hspace{2cm}}$ $.02 \times .04 = \underline{\hspace{2cm}}$ $.07 \times .06 = \underline{\hspace{2cm}}$ $.02 \times .02 = \underline{\hspace{2cm}}$

Multiply.

7.
$$\begin{array}{r} .4 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} .47 \\ \times .5 \\ \hline \end{array}$$

$$\begin{array}{r} .018 \\ \times .9 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 4.2 \\ \times .6 \\ \hline \end{array}$$

$$\begin{array}{r} 3.4 \\ \times .08 \\ \hline \end{array}$$

$$\begin{array}{r} 5.01 \\ \times .73 \\ \hline \end{array}$$

$$\begin{array}{r} .078 \\ \times 7.6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 332 \\ \times .26 \\ \hline \end{array}$$

$$\begin{array}{r} 4.16 \\ \times 412 \\ \hline \end{array}$$

$$\begin{array}{r} .0508 \\ \times 318 \\ \hline \end{array}$$

$$\begin{array}{r} 194.2 \\ \times .044 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 36

My score:

Multiplication

$$3 \times .1 = \frac{3}{1} \times \frac{1}{10}$$

$$= \frac{3}{10}$$

$$3 \times .01 = \frac{3}{1} \times \frac{1}{100}$$

$$= \frac{3}{100}$$

$$3 \times .001 = \frac{3}{1} \times \frac{1}{1000}$$

$$= \frac{3}{1000}$$

$$.4 \times 3 = \frac{4}{10} \times \frac{3}{1}$$

$$= \frac{12}{10} \text{ or } 1\frac{2}{10}$$

$$= \underline{1.2}$$

$$.04 \times 3 = \frac{4}{100} \times \frac{3}{1}$$

$$= \frac{12}{100}$$

$$= \underline{\hspace{2cm}}$$

$$.004 \times 3 = \frac{4}{1000} \times \frac{3}{1}$$

$$= \frac{12}{1000}$$

$$= \underline{\hspace{2cm}}$$

Complete the following.

*a**b**c**d*

1. $2 \times 7 = \underline{\hspace{2cm}}$ $2 \times .7 = \underline{\hspace{2cm}}$ $2 \times .07 = \underline{\hspace{2cm}}$ $2 \times .007 = \underline{\hspace{2cm}}$

2. $3 \times 2 = \underline{\hspace{2cm}}$ $3 \times .2 = \underline{\hspace{2cm}}$ $3 \times .02 = \underline{\hspace{2cm}}$ $3 \times .002 = \underline{\hspace{2cm}}$

3. $6 \times 8 = \underline{\hspace{2cm}}$ $6 \times .8 = \underline{\hspace{2cm}}$ $6 \times .08 = \underline{\hspace{2cm}}$ $6 \times .008 = \underline{\hspace{2cm}}$

4. $2 \times 2 = \underline{\hspace{2cm}}$ $2 \times .2 = \underline{\hspace{2cm}}$ $2 \times .02 = \underline{\hspace{2cm}}$ $2 \times .002 = \underline{\hspace{2cm}}$

5. $4 \times 8 = \underline{\hspace{2cm}}$ $4 \times .8 = \underline{\hspace{2cm}}$ $4 \times .08 = \underline{\hspace{2cm}}$ $4 \times .008 = \underline{\hspace{2cm}}$

6. $8 \times 4 = \underline{\hspace{2cm}}$ $.8 \times 4 = \underline{\hspace{2cm}}$ $.08 \times 4 = \underline{\hspace{2cm}}$ $.008 \times 4 = \underline{\hspace{2cm}}$

7. $3 \times 5 = \underline{\hspace{2cm}}$ $.3 \times 5 = \underline{\hspace{2cm}}$ $.03 \times 5 = \underline{\hspace{2cm}}$ $.003 \times 5 = \underline{\hspace{2cm}}$

8. $4 \times 2 = \underline{\hspace{2cm}}$ $.4 \times 2 = \underline{\hspace{2cm}}$ $.04 \times 2 = \underline{\hspace{2cm}}$ $.004 \times 2 = \underline{\hspace{2cm}}$

Complete the following.

*a**b**c**d*

9. $.7 \times 8 = \underline{\hspace{2cm}}$ $.09 \times 6 = \underline{\hspace{2cm}}$ $5 \times .07 = \underline{\hspace{2cm}}$ $.009 \times 9 = \underline{\hspace{2cm}}$

10. $8 \times .08 = \underline{\hspace{2cm}}$ $7 \times .6 = \underline{\hspace{2cm}}$ $.003 \times 2 = \underline{\hspace{2cm}}$ $.03 \times 3 = \underline{\hspace{2cm}}$

11. $.6 \times 3 = \underline{\hspace{2cm}}$ $3 \times .003 = \underline{\hspace{2cm}}$ $6 \times .04 = \underline{\hspace{2cm}}$ $.01 \times 9 = \underline{\hspace{2cm}}$

12. $.009 \times 6 = \underline{\hspace{2cm}}$ $8 \times .02 = \underline{\hspace{2cm}}$ $5 \times .9 = \underline{\hspace{2cm}}$ $.8 \times 2 = \underline{\hspace{2cm}}$

Check your answers. Record your score.

Perfect score: 48

My score: _____

Multiplication

$$\begin{aligned} .1 \times .1 &= \frac{1}{10} \times \frac{1}{10} \\ &= \frac{1}{100} \\ &= .01 \end{aligned}$$

$$\begin{aligned} .2 \times .7 &= \frac{2}{10} \times \frac{7}{10} \\ &= \frac{14}{100} \\ &= \underline{\quad .14 \quad} \end{aligned}$$

$$\begin{aligned} .1 \times .01 &= \frac{1}{10} \times \frac{1}{100} \\ &= \frac{1}{1000} \\ &= .001 \end{aligned}$$

$$\begin{aligned} .2 \times .07 &= \frac{2}{10} \times \frac{7}{100} \\ &= \frac{14}{1000} \\ &= \underline{\quad \quad \quad} \end{aligned}$$

$$\begin{aligned} .01 \times .01 &= \frac{1}{100} \times \frac{1}{100} \\ &= \frac{1}{10000} \\ &= .0001 \end{aligned}$$

$$\begin{aligned} .02 \times .07 &= \frac{2}{100} \times \frac{7}{100} \\ &= \frac{14}{10000} \\ &= \underline{\quad \quad \quad} \end{aligned}$$

Complete the following.

a

b

c

d

1. $4 \times 3 = \underline{\quad \quad \quad}$ $.4 \times .3 = \underline{\quad \quad \quad}$ $.4 \times .03 = \underline{\quad \quad \quad}$ $.04 \times .03 = \underline{\quad \quad \quad}$

2. $2 \times 3 = \underline{\quad \quad \quad}$ $.2 \times .3 = \underline{\quad \quad \quad}$ $.2 \times .03 = \underline{\quad \quad \quad}$ $.02 \times .03 = \underline{\quad \quad \quad}$

3. $7 \times 6 = \underline{\quad \quad \quad}$ $.7 \times .6 = \underline{\quad \quad \quad}$ $.7 \times .06 = \underline{\quad \quad \quad}$ $.07 \times .06 = \underline{\quad \quad \quad}$

4. $4 \times 2 = \underline{\quad \quad \quad}$ $.4 \times .2 = \underline{\quad \quad \quad}$ $.4 \times .02 = \underline{\quad \quad \quad}$ $.04 \times .02 = \underline{\quad \quad \quad}$

5. $6 \times 9 = \underline{\quad \quad \quad}$ $.6 \times .9 = \underline{\quad \quad \quad}$ $.6 \times .09 = \underline{\quad \quad \quad}$ $.06 \times .09 = \underline{\quad \quad \quad}$

6. $9 \times 6 = \underline{\quad \quad \quad}$ $.9 \times .6 = \underline{\quad \quad \quad}$ $.09 \times .6 = \underline{\quad \quad \quad}$ $.09 \times .06 = \underline{\quad \quad \quad}$

7. $4 \times 8 = \underline{\quad \quad \quad}$ $.4 \times .8 = \underline{\quad \quad \quad}$ $.04 \times .8 = \underline{\quad \quad \quad}$ $.04 \times .08 = \underline{\quad \quad \quad}$

8. $5 \times 1 = \underline{\quad \quad \quad}$ $.5 \times .1 = \underline{\quad \quad \quad}$ $.05 \times .1 = \underline{\quad \quad \quad}$ $.05 \times .01 = \underline{\quad \quad \quad}$

Complete the following.

a

b

c

d

9. $.5 \times .9 = \underline{\quad \quad \quad}$ $.08 \times .03 = \underline{\quad \quad \quad}$ $.3 \times .002 = \underline{\quad \quad \quad}$ $.6 \times .04 = \underline{\quad \quad \quad}$

10. $.04 \times .2 = \underline{\quad \quad \quad}$ $.8 \times .7 = \underline{\quad \quad \quad}$ $.4 \times .008 = \underline{\quad \quad \quad}$ $.07 \times .09 = \underline{\quad \quad \quad}$

11. $.009 \times .7 = \underline{\quad \quad \quad}$ $.7 \times .07 = \underline{\quad \quad \quad}$ $.3 \times .2 = \underline{\quad \quad \quad}$ $.006 \times .4 = \underline{\quad \quad \quad}$

12. $.2 \times .007 = \underline{\quad \quad \quad}$ $.09 \times .3 = \underline{\quad \quad \quad}$ $.02 \times .02 = \underline{\quad \quad \quad}$ $.08 \times .6 = \underline{\quad \quad \quad}$

Check your answers. Record your score.

Perfect score: 48

My score:

Multiplication

number of digits to the right of the decimal point

$\begin{array}{r} 24 \\ \times 36 \\ \hline 864 \end{array}$	$\begin{array}{r} 2.4 \\ \times 36 \\ \hline 86.4 \end{array}$	$\begin{array}{r} .24 \\ \times 36 \\ \hline 8.64 \end{array}$	$\begin{array}{r} .24 \\ \times 3.6 \\ \hline .864 \end{array}$	$\begin{array}{r} .24 \\ \times .36 \\ \hline .0864 \end{array}$
	1	2	2	2
	+0	+0	+1	+2
	1	2	3	4

$12 \times 27 = 324$, so $12 \times 2.7 =$ _____

$12 \times 27 = 324$, so $1.2 \times .27 =$ _____

and $12 \times .27 =$ _____

and $.12 \times .27 =$ _____

Write the simplest numeral for each product.

1. $\begin{array}{r} 32 \\ \times 14 \\ \hline 448 \end{array}$

a
 $\begin{array}{r} 3.2 \\ \times 1.4 \\ \hline \end{array}$

b
 $\begin{array}{r} .32 \\ \times 1.4 \\ \hline \end{array}$

c
 $\begin{array}{r} .32 \\ \times 1.4 \\ \hline \end{array}$

d
 $\begin{array}{r} .32 \\ \times .14 \\ \hline \end{array}$

2. $\begin{array}{r} 27 \\ \times 48 \\ \hline 1296 \end{array}$

$\begin{array}{r} 2.7 \\ \times 4.8 \\ \hline \end{array}$

$\begin{array}{r} .27 \\ \times 4.8 \\ \hline \end{array}$

$\begin{array}{r} .27 \\ \times 4.8 \\ \hline \end{array}$

$\begin{array}{r} .27 \\ \times .48 \\ \hline \end{array}$

3. $\begin{array}{r} 26 \\ \times 34 \\ \hline 884 \end{array}$

$\begin{array}{r} .26 \\ \times 3.4 \\ \hline \end{array}$

$\begin{array}{r} .26 \\ \times 3.4 \\ \hline \end{array}$

$\begin{array}{r} .26 \\ \times .34 \\ \hline \end{array}$

$\begin{array}{r} 2.6 \\ \times 3.4 \\ \hline \end{array}$

4. $\begin{array}{r} 74 \\ \times 26 \\ \hline 1924 \end{array}$

$\begin{array}{r} .74 \\ \times 2.6 \\ \hline \end{array}$

$\begin{array}{r} 7.4 \\ \times 2.6 \\ \hline \end{array}$

$\begin{array}{r} .74 \\ \times 2.6 \\ \hline \end{array}$

$\begin{array}{r} .74 \\ \times .26 \\ \hline \end{array}$

5. $\begin{array}{r} 25 \\ \times 3 \\ \hline 75 \end{array}$

$\begin{array}{r} 2.5 \\ \times .3 \\ \hline \end{array}$

$\begin{array}{r} 2.5 \\ \times .03 \\ \hline \end{array}$

$\begin{array}{r} 2.5 \\ \times .03 \\ \hline \end{array}$

$\begin{array}{r} .25 \\ \times .03 \\ \hline \end{array}$

6. $\begin{array}{r} 12 \\ \times 4 \\ \hline 48 \end{array}$

$\begin{array}{r} 1.2 \\ \times .4 \\ \hline \end{array}$

$\begin{array}{r} .12 \\ \times 4 \\ \hline \end{array}$

$\begin{array}{r} .12 \\ \times .4 \\ \hline \end{array}$

$\begin{array}{r} .12 \\ \times .04 \\ \hline \end{array}$

7. $\begin{array}{r} 73 \\ \times 3 \\ \hline 219 \end{array}$

$\begin{array}{r} 7.3 \\ \times .03 \\ \hline \end{array}$

$\begin{array}{r} .73 \\ \times .03 \\ \hline \end{array}$

$\begin{array}{r} 7.3 \\ \times .3 \\ \hline \end{array}$

$\begin{array}{r} .73 \\ \times .3 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 28

My score: _____

Multiplication

number of digits to the right of the decimal point

$\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$	$\begin{array}{r} .6 \\ \times 3 \\ \hline 1.8 \end{array}$	$\begin{array}{r} 1 \\ +0 \\ \hline 1 \end{array}$	$\begin{array}{r} .6 \\ \times .3 \\ \hline .18 \end{array}$	$\begin{array}{r} 1 \\ +1 \\ \hline 2 \end{array}$	$\begin{array}{r} .06 \\ \times 3 \\ \hline .18 \end{array}$	$\begin{array}{r} 2 \\ +0 \\ \hline 2 \end{array}$	$\begin{array}{r} .06 \\ \times .3 \\ \hline .018 \end{array}$	$\begin{array}{r} 2 \\ +1 \\ \hline 3 \end{array}$	$\begin{array}{r} .06 \\ \times .03 \\ \hline .0018 \end{array}$	$\begin{array}{r} 2 \\ +2 \\ \hline 4 \end{array}$	$\begin{array}{r} .006 \\ \times .3 \\ \hline .0018 \end{array}$	$\begin{array}{r} 3 \\ +1 \\ \hline 4 \end{array}$
---	---	--	--	--	--	--	--	--	--	--	--	--

$$4 \times 8 = 32, \text{ so } 4 \times .8 = \underline{\hspace{2cm}},$$

$$.4 \times .8 = \underline{\hspace{2cm}},$$

$$\text{and } 4 \times .08 = \underline{\hspace{2cm}}.$$

$$4 \times 8 = 32, \text{ so } .4 \times .08 = \underline{\hspace{2cm}},$$

$$.4 \times .08 = \underline{\hspace{2cm}},$$

$$\text{and } .4 \times .008 = \underline{\hspace{2cm}}.$$

Multiply.

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. $\begin{array}{r} .7 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times .2 \\ \hline \end{array}$	$\begin{array}{r} .8 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times .3 \\ \hline \end{array}$	$\begin{array}{r} .2 \\ \times 4 \\ \hline \end{array}$
2. $\begin{array}{r} .8 \\ \times .6 \\ \hline \end{array}$	$\begin{array}{r} .1 \\ \times .6 \\ \hline \end{array}$	$\begin{array}{r} .3 \\ \times .7 \\ \hline \end{array}$	$\begin{array}{r} .2 \\ \times .4 \\ \hline \end{array}$	$\begin{array}{r} .7 \\ \times .6 \\ \hline \end{array}$
3. $\begin{array}{r} .08 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} .02 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times .08 \\ \hline \end{array}$	$\begin{array}{r} .09 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times .03 \\ \hline \end{array}$
4. $\begin{array}{r} .05 \\ \times .9 \\ \hline \end{array}$	$\begin{array}{r} .7 \\ \times .05 \\ \hline \end{array}$	$\begin{array}{r} .08 \\ \times .8 \\ \hline \end{array}$	$\begin{array}{r} .2 \\ \times .03 \\ \hline \end{array}$	$\begin{array}{r} .03 \\ \times .5 \\ \hline \end{array}$
5. $\begin{array}{r} .03 \\ \times .08 \\ \hline \end{array}$	$\begin{array}{r} .04 \\ \times .06 \\ \hline \end{array}$	$\begin{array}{r} .09 \\ \times .01 \\ \hline \end{array}$	$\begin{array}{r} .07 \\ \times .08 \\ \hline \end{array}$	$\begin{array}{r} .03 \\ \times .02 \\ \hline \end{array}$
6. $\begin{array}{r} .007 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times .008 \\ \hline \end{array}$	$\begin{array}{r} .004 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} .008 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times .007 \\ \hline \end{array}$
7. $\begin{array}{r} .005 \\ \times .9 \\ \hline \end{array}$	$\begin{array}{r} .009 \\ \times .9 \\ \hline \end{array}$	$\begin{array}{r} .3 \\ \times .004 \\ \hline \end{array}$	$\begin{array}{r} .003 \\ \times .3 \\ \hline \end{array}$	$\begin{array}{r} .5 \\ \times .005 \\ \hline \end{array}$

Check your answers. Record your score.

Perfect score: 35 My score:

NAME _____

Multiplication

Multiply.

$$\begin{array}{r} a \\ 1. \quad 8 \\ \times .3 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ .9 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ .07 \\ \times .9 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ .6 \\ \times .8 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ .05 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad .12 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} .027 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} .35 \\ \times .3 \\ \hline \end{array}$$

$$\begin{array}{r} .072 \\ \times .9 \\ \hline \end{array}$$

$$\begin{array}{r} 84 \\ \times .2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 43 \\ \times .08 \\ \hline \end{array}$$

$$\begin{array}{r} 5.4 \\ \times .04 \\ \hline \end{array}$$

$$\begin{array}{r} .076 \\ \times .7 \\ \hline \end{array}$$

$$\begin{array}{r} .18 \\ \times .09 \\ \hline \end{array}$$

$$\begin{array}{r} .092 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad .137 \\ \times .3 \\ \hline \end{array}$$

$$\begin{array}{r} 4.82 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 907 \\ \times .4 \\ \hline \end{array}$$

$$\begin{array}{r} 6.53 \\ \times .7 \\ \hline \end{array}$$

$$\begin{array}{r} .416 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 32.1 \\ \times .5 \\ \hline \end{array}$$

$$\begin{array}{r} 5.06 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} .0709 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} .421 \\ \times .2 \\ \hline \end{array}$$

$$\begin{array}{r} .0503 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad .27 \\ \times 4.2 \\ \hline \end{array}$$

$$\begin{array}{r} 5.8 \\ \times .16 \\ \hline \end{array}$$

$$\begin{array}{r} .03 \\ \times 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} .42 \\ \times .53 \\ \hline \end{array}$$

$$\begin{array}{r} 7.6 \\ \times 7.6 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad .187 \\ \times 3.5 \\ \hline \end{array}$$

$$\begin{array}{r} .084 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 16.1 \\ \times 5.3 \\ \hline \end{array}$$

$$\begin{array}{r} .072 \\ \times 6.2 \\ \hline \end{array}$$

$$\begin{array}{r} 5.21 \\ \times 75 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 42.16 \\ \times 1.8 \\ \hline \end{array}$$

$$\begin{array}{r} .4218 \\ \times 22 \\ \hline \end{array}$$

$$\begin{array}{r} 306.4 \\ \times .24 \\ \hline \end{array}$$

$$\begin{array}{r} .0314 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} .0144 \\ \times 37 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 40

My score: _____

Problems

Solve each problem.

1. A box of seeds weighs .9 pound. How many pounds would 6 boxes weigh?

They would weigh _____ pounds.

2. A machinist has 4 sheets of metal, each .042 inch thick. These are placed one on top of the other. What is the total thickness of the sheets?

It will be _____ inch thick.

3. Each nail weighs .03 pound. How many pounds would 38 nails weigh?

They would weigh _____ pounds.

4. A keg of liquid weighs 42.1 pounds. How much would .5 of a keg weigh?

It would weigh _____ pounds.

5. The thickness of a sheet of plastic is .024 inch. What would be the combined thickness of 6 sheets of plastic?

The combined thickness would be _____ inch.

6. In problem 5, what would be the combined thickness of 8 sheets of plastic?

The combined thickness would be _____ inch.

7. Mrs. Tomasello has 92 sheets of foil. Each sheet is .0413 inch thick. What is the combined thickness of the sheets?

The combined thickness would be _____ inches.

8. Mr. Richards' car averages 14.2 miles per gallon of gasoline. How many miles would he be able to travel with 37 gallons of gasoline?

He would be able to travel _____ miles.

9. Suppose the car in problem 8 averages 12.8 miles per gallon. How far would he be able to travel?

He would be able to travel _____ miles.

Check your answers. Record your score.

Perfect score: 9

My score: _____

NAME _____

Multiplication

Multiply.

$$\begin{array}{r} a \\ 1. \quad 4.5 \\ \times .27 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ .38 \\ \times .32 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 2.6 \\ \times .043 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 7.5 \\ \times 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad .149 \\ \times 53 \\ \hline \end{array}$$

$$\begin{array}{r} 47.6 \\ \times .042 \\ \hline \end{array}$$

$$\begin{array}{r} 3.08 \\ \times 5.3 \\ \hline \end{array}$$

$$\begin{array}{r} .729 \\ \times 6.1 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 35.46 \\ \times .27 \\ \hline \end{array}$$

$$\begin{array}{r} 318.2 \\ \times .36 \\ \hline \end{array}$$

$$\begin{array}{r} 9.804 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 800.6 \\ \times .043 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 7.21 \\ \times 5.34 \\ \hline \end{array}$$

$$\begin{array}{r} 40.7 \\ \times 4.31 \\ \hline \end{array}$$

$$\begin{array}{r} 312 \\ \times .0624 \\ \hline \end{array}$$

$$\begin{array}{r} .598 \\ \times 75.3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 3.182 \\ \times 456 \\ \hline \end{array}$$

$$\begin{array}{r} .3008 \\ \times 246 \\ \hline \end{array}$$

$$\begin{array}{r} 21.09 \\ \times 45.6 \\ \hline \end{array}$$

$$\begin{array}{r} 5143 \\ \times .0318 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Solve each problem.

1. Each box of bolts weighs 1.7 pounds. There are 24 boxes in a carton. How many pounds would a carton of bolts weigh?

A carton would weigh _____ pounds.

2. A sheet of paper is .012 inch thick. How many inches thick would a pad of paper be if it contained 28 sheets of paper?

The pad would be _____ inch thick.

3. Each piece of cardboard is .024 inch thick. There are 67 pieces of cardboard in a stack. How high is the stack?

The stack would be _____ inches high.

4. Miss Wilson wrote $4.2 \times 264.3 = ?$ and $4.2 \times 26.43 = ?$ on the board. She told the pupils to solve the problems and write the answer that names the greatest product. What is the correct answer?

The correct answer is _____.

5. Miss Wilson wrote $6.41 \times .035 = ?$ and $64.1 \times .35 = ?$ on the board. She told the pupils to solve the problems and write the answer that names the least product. What is the correct answer?

The correct answer is _____.

6. Each container filled with chemical X weighs 132.7 pounds. How many pounds would 42.5 containers weigh?

They would weigh _____ pounds.

7. Mr. Wilcox wrote 30.8; 308; and 3.08 on the board. He told the pupils to find the product of the two greatest numbers named. What should the answer be?

The answer should be _____.

8. Suppose in problem 7 the pupils had been asked to find the product of the two least numbers named. What should the answer be?

The answer should be _____.

Check your answers. Record your score.

Perfect score: 8

My score: _____

NAME _____

TEST—Multiplication

Multiply.

$$\begin{array}{r} \text{1.} \quad \text{a} \\ .6 \\ \times .8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b} \\ .18 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c} \\ .308 \\ \times .9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d} \\ .42 \\ \times 5.3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e} \\ 1.73 \\ \times 2.8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{2.} \quad 9 \\ \times .6 \\ \hline \end{array}$$

$$\begin{array}{r} 2.4 \\ \times .3 \\ \hline \end{array}$$

$$\begin{array}{r} 42.6 \\ \times .7 \\ \hline \end{array}$$

$$\begin{array}{r} .64 \\ \times .75 \\ \hline \end{array}$$

$$\begin{array}{r} 146 \\ \times .52 \\ \hline \end{array}$$

$$\begin{array}{r} \text{3.} \quad .05 \\ \times .3 \\ \hline \end{array}$$

$$\begin{array}{r} .64 \\ \times .9 \\ \hline \end{array}$$

$$\begin{array}{r} 3.15 \\ \times .9 \\ \hline \end{array}$$

$$\begin{array}{r} 5.8 \\ \times 6.1 \\ \hline \end{array}$$

$$\begin{array}{r} 35.6 \\ \times .42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{4.} \quad 4 \\ \times .02 \\ \hline \end{array}$$

$$\begin{array}{r} 5.3 \\ \times .04 \\ \hline \end{array}$$

$$\begin{array}{r} 6.02 \\ \times .04 \\ \hline \end{array}$$

$$\begin{array}{r} 7.81 \\ \times 15.2 \\ \hline \end{array}$$

$$\begin{array}{r} 162.8 \\ \times .309 \\ \hline \end{array}$$

$$\begin{array}{r} \text{5.} \quad .9 \\ \times .006 \\ \hline \end{array}$$

$$\begin{array}{r} .67 \\ \times .02 \\ \hline \end{array}$$

$$\begin{array}{r} 532 \\ \times .07 \\ \hline \end{array}$$

$$\begin{array}{r} 3.86 \\ \times 4.04 \\ \hline \end{array}$$

$$\begin{array}{r} 4018 \\ \times .0632 \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 25 My score: _____

PRE-TEST—Division

Divide.

a

b

c

d

1. $2 \overline{) 14.6}$

$7 \overline{) 1.89}$

$9 \overline{) .405}$

$6 \overline{) .0114}$

2. $.3 \overline{) 6}$

$.5 \overline{) 75}$

$.02 \overline{) 42}$

$.004 \overline{) 16}$

3. $.6 \overline{) .72}$

$.3 \overline{) 6.3}$

$.04 \overline{) .096}$

$.003 \overline{) .015}$

4. $.04 \overline{) 3.2}$

$.08 \overline{) 4.8}$

$.002 \overline{) 7.26}$

$.003 \overline{) 1.8}$

5. $.18 \overline{) 27}$

$1.7 \overline{) .238}$

$4.6 \overline{) 2.116}$

$.38 \overline{) .3496}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

Division

When dividing a number like 1.02 by 6, divide as if both numbers were whole numbers. Then place a decimal point in the quotient numeral directly above the decimal point in 1.02.

$$\begin{array}{r} 17 \\ 6 \overline{)102} \\ \underline{60} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

$$\begin{array}{r} 17 \\ 6 \overline{)10.2} \\ \underline{60} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

$$\begin{array}{r} 17 \\ 6 \overline{)1.02} \\ \underline{60} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

$$\begin{array}{r} 017 \\ 6 \overline{)1.02} \\ \underline{60} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

$172 \div 4 = 43, \text{ so } 17.2 \div 4 = \underline{\hspace{2cm}} \qquad 172 \div 4 = 43, \text{ so } .172 \div 4 = \underline{\hspace{2cm}}$

$\text{and } 1.72 \div 4 = \underline{\hspace{2cm}}. \qquad \text{and } .0172 \div 4 = \underline{\hspace{2cm}}.$

Divide.

*a**b**c**d**e*

1. $4 \overline{)292}$

$4 \overline{)29.2}$

$4 \overline{)2.92}$

$4 \overline{).292}$

$4 \overline{).0292}$

2. $3 \overline{)5.61}$

$8 \overline{).0216}$

$7 \overline{).231}$

$4 \overline{)4.64}$

$6 \overline{)25.2}$

3. $7 \overline{)24.5}$

$8 \overline{).336}$

$6 \overline{).0162}$

$4 \overline{)24.4}$

$3 \overline{)1.68}$

Check your answers. Record your score.

Perfect score: 15

My score: _____

Problems

Solve each problem.

1. A wire .8 inch long is to be cut into 4 pieces each the same length. How long will each piece be?

Each piece will be _____ inch long.

2. The same amount of sugar was used in each of 3 batches of candy. A total of 6.9 pounds of sugar was used. How much sugar was in each batch?

_____ pounds were in each batch.

3. The combined thickness of 5 sheets of metal is .015 inch. Each sheet has the same thickness. How thick is each sheet?

Each sheet is _____ inch thick.

4. Each of 7 bolts has the same weight. Their total weight is .42 pound. How much does each bolt weigh?

Each bolt weighs _____ pound.

5. Mr. Rinkles wrote .08; 8; and .008 on the board. He told the pupils to divide the least number named by the greatest number named. What is the answer?

The answer is _____.

6. Mr. Rinkles wrote 4; 72.4; and 7.24 on the board. He told the pupils to divide the greatest number named by the least number named. What is the correct answer?

The correct answer is _____.

7. A sheet of film is .0072 inch thick. It is 6 times thicker than desired. What thickness is desired?

A sheet _____ inch thick is desired.

8. Suppose the film in problem 7 is .0186 inch thick. What thickness is desired?

A sheet _____ inch thick is desired.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Division

Multiply both dividend and divisor by 10, or 100, or so on, so the new divisor is a whole number.

$$\begin{array}{c}
 .4 \overline{)56} \xrightarrow{\text{multiply by 10}} \frac{56}{.4} = \frac{56 \times 10}{.4 \times 10} = \frac{560}{4} \xrightarrow{\text{divide}} 4 \overline{)560} \\
 \xrightarrow{\text{multiply by 10}} .4 \overline{)56.0} \xrightarrow{\text{divide}} \begin{array}{r} 140 \\ 4 \overline{)560} \\ \underline{400} \\ 160 \\ \underline{160} \\ 0 \end{array}
 \end{array}$$

$560 \div 4 = 140$, so $56 \div .4 = \underline{\hspace{2cm}}$.

$$\begin{array}{c}
 .03 \overline{)42} \xrightarrow{\text{multiply by 100}} .03 \overline{)42.00} \xrightarrow{\text{divide}} 3 \overline{)4200} \\
 \xrightarrow{\text{multiply by 100}} .03 \overline{)42.00} \xrightarrow{\text{divide}} \begin{array}{r} 1400 \\ 3 \overline{)4200} \\ \underline{3000} \\ 1200 \\ \underline{1200} \\ 0 \end{array}
 \end{array}$$

$4200 \div 3 = 1400$, so $42 \div .03 = \underline{\hspace{2cm}}$.

Divide.

*a**b**c**d*

1. $.4 \overline{)72}$

$.3 \overline{)81}$

$.7 \overline{)357}$

$.3 \overline{)111}$

2. $.03 \overline{)54}$

$.04 \overline{)96}$

$.05 \overline{)85}$

$.08 \overline{)296}$

3. $.002 \overline{)6}$

$.004 \overline{)12}$

$.006 \overline{)24}$

$.005 \overline{)155}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Problems

Solve each problem.

1. Dick has 72 pounds of candy to put into bags. If .4 pound is put into each bag, how many bags are needed?

_____ bags are needed.

2. A machine uses .3 gallon of fuel each hour. How many hours could the machine operate with 39 gallons of fuel?

The machine could operate _____ hours.

3. Each piece of candy weighs .04 pound. How many pieces of candy would there be in 520 pounds?

There would be _____ pieces of candy.

4. A machine uses .3 gallon of fuel each hour. At that rate, how many hours could the machine operate by using 195 gallons of fuel?

The machine could operate _____ hours.

5. Three-tenths pound of medicine is put into each jar. How many jars can be filled with 72 pounds of medicine?

_____ jars can be filled.

6. Each sheet of foil is .004 inch thick. How many sheets would be in a stack of foil that is 5 inches high?

There would be _____ sheets.

7. Miss Pruitt wrote .6; .006; 6; and .06 on the board. She told the pupils to divide the greatest number named by the least number named. What is the correct answer?

The correct answer is _____.

8. Each class period lasts .5 hour. How many class periods could there be in 6 hours?

There could be _____ periods.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Division

Multiply both dividend and divisor by 10, or 100, or so on, so the new divisor is a whole number.

$$\begin{array}{c}
 .06 \overline{) .426} \xrightarrow{\text{multiply by 100}} \frac{.426}{.06} = \frac{.426 \times 100}{.06 \times 100} = \frac{42.6}{6} \xrightarrow{\text{divide}} 6 \overline{) 42.6} \\
 \begin{array}{r}
 6 \overline{) 42.6} \\
 \underline{42\ 0} \\
 6 \\
 \underline{6} \\
 0
 \end{array}
 \end{array}$$

$42.6 \div 6 = 7.1$, so $.426 \div .06 = \underline{\hspace{2cm}}$.

$$\begin{array}{c}
 .005 \overline{) .115} \xrightarrow{\text{multiply by 1000}} \frac{.115}{.005} = \frac{.115 \times 1000}{.005 \times 1000} = \frac{115}{5} \xrightarrow{\text{divide}} 5 \overline{) 115} \\
 \begin{array}{r}
 5 \overline{) 115} \\
 \underline{100} \\
 15 \\
 \underline{15} \\
 0
 \end{array}
 \end{array}$$

$115 \div 5 = 23$, so $.115 \div .005 = \underline{\hspace{2cm}}$.

Divide.

*a**b**c**d*

1. $.4 \overline{) 7.2}$

b $.3 \overline{) .81}$

c $.8 \overline{) .392}$

d $.6 \overline{) 55.2}$

2. $.06 \overline{) .84}$

$.04 \overline{) .068}$

$.08 \overline{) .224}$

$.07 \overline{) 2.52}$

3. $.002 \overline{) .008}$

$.007 \overline{) .0042}$

$.008 \overline{) .144}$

$.009 \overline{) .0333}$

Check your answers. Record your score.

Perfect score: 12

My score: _____

Division

$$.04 \overline{)9.6} \rightarrow .04 \overline{)9.60} \rightarrow \begin{array}{r} 240 \\ 4 \overline{)960} \\ \underline{800} \\ 160 \\ \underline{160} \\ 0 \end{array}$$

$960 \div 4 = 240$, so $9.6 \div .04 = \underline{\hspace{2cm}}$.

$$.003 \overline{)2.1} \rightarrow .003 \overline{)2.100} \rightarrow \begin{array}{r} 700 \\ 3 \overline{)2100} \\ \underline{2100} \\ 0 \end{array}$$

$2100 \div 3 = 700$, so $2.1 \div .003 = \underline{\hspace{2cm}}$.

Divide.

a

b

c

d

1. $.03 \overline{)1.8}$

$.06 \overline{)28.8}$

$.04 \overline{)9.2}$

$.05 \overline{)1.5}$

2. $.003 \overline{)2.4}$

$.009 \overline{).45}$

$.008 \overline{)2.16}$

$.005 \overline{)2.5}$

3. $.02 \overline{)7.4}$

$.006 \overline{)10.2}$

$.08 \overline{)27.2}$

$.008 \overline{)9.6}$

4. $.05 \overline{)3.25}$

$.06 \overline{)4.2}$

$.002 \overline{).4}$

$.004 \overline{).56}$

Check your answers. Record your score.

Perfect score: 16

My score:

Division

$$.08 \overline{) .216} \longrightarrow .08 \overline{) .216}$$

$$\begin{array}{r} 2.7 \\ .08 \overline{) .216} \\ \underline{160} \\ 56 \\ \underline{56} \\ 0 \end{array}$$

Check

$$\begin{array}{r} 2.7 \\ \times .08 \\ \hline .216 \end{array}$$

To check $.216 \div .08 = 2.7$, multiply 2.7 by _____. The answer should be _____.

Divide. Check each answer.

*a**b**c*

1. $3 \overline{) 1.44}$

$6 \overline{) 17.4}$

$5 \overline{) .085}$

2. $.3 \overline{) 45}$

$.003 \overline{) 12}$

$.07 \overline{) 14}$

3. $.7 \overline{) .98}$

$.006 \overline{) 31.8}$

$.08 \overline{) .632}$

4. $.03 \overline{) 4.2}$

$.004 \overline{) 7.2}$

$.006 \overline{) 1.68}$

5. $.08 \overline{) 9.6}$

$.003 \overline{) 84}$

$6 \overline{) 9.6}$

Check your answers. Record your score.

Perfect score: 15

My score: _____

Problems

Solve each problem. Check each answer.

1. Three-tenths pound of chemical is put into each container. How many containers can be filled with 5.4 pounds of chemical?

_____ containers can be filled.

2. Seventy-five hundredths pound of product Y is to be put into containers that hold .5 pound each. How many full containers will there be? What part of the next container will be filled?

There will be _____ full container.

_____ of the next container will be filled.

3. There are 10.2 pounds of ball bearings in a box. Each bearing weighs .006 pound. How many bearings are in the box?

There are _____ bearings in the box.

4. A machine processes 1.95 pounds of chemical every 3 hours. At that rate, how many pounds of chemical are processed in 1 hour?

_____ pounds are processed.

5. Each sheet of metal is .005 inch thick. How many sheets of metal would there be in a stack that is 4.2 inches high?

There would be _____ sheets.

6. Consider the numbers named by .06 and .6. What is the quotient if you divide the greater number by the lesser number?

The quotient is _____.

7. Suppose in problem 6 you divide the lesser number by the greater number. What is the quotient?

The quotient is _____.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 8 My score: _____

NAME _____

Division

$$.25 \overline{)1} \longrightarrow .25 \overline{)1.00} \begin{array}{r} 4 \\ 100 \\ \hline 0 \end{array}$$

$$100 \div 25 = 4, \text{ so } 1 \div .25 = \underline{\hspace{2cm}}.$$

$$2.7 \overline{)3.78} \longrightarrow 2.7 \overline{)3.78} \begin{array}{r} 1.4 \\ 270 \\ \hline 108 \\ 108 \\ \hline 0 \end{array}$$

$$37.8 \div 27 = 1.4, \text{ so } 3.78 \div 2.7 = \underline{\hspace{2cm}}.$$

Divide.

a

b

c

d

1. $.20 \overline{)1}$

$.15 \overline{)9}$

$.028 \overline{)14}$

$.012 \overline{)6}$

2. $1.2 \overline{)3.96}$

$.42 \overline{).756}$

$.18 \overline{).828}$

$2.5 \overline{).625}$

3. $.67 \overline{).3886}$

$.45 \overline{)1.215}$

$7.3 \overline{)30.66}$

$4.3 \overline{).1376}$

4. $.025 \overline{)75}$

$.36 \overline{)1.512}$

$5.4 \overline{).3942}$

$.53 \overline{).636}$

Check your answers. Record your score.

Perfect score: 16

My score: _____

Problems

Solve each problem.

1. A carton of items weighs 28.8 pounds. Each item weighs 3.6 pounds. How many items are in the carton?

_____ items are in the carton.

2. There is .444 pound of chemical to be put into tubes. Each tube holds .12 pound. How many tubes will be filled? How much of another tube is filled?

_____ tubes will be filled.

_____ of the next tube will be filled.

3. A stack of cardboard is 52 inches high. Each piece is .65 inch thick. How many pieces of cardboard are in the stack?

_____ pieces are in the stack.

4. How many pieces each .25 inch long can be cut from a wire that is 2 inches long?

_____ pieces can be cut from the wire.

5. How many pieces each .5 inch long can be cut from the wire described in problem 4?

_____ pieces can be cut from the wire.

6. Each bag of flour weighs 2.2 pounds. How many such bags can be filled by using 11 pounds of flour?

_____ bags can be filled.

7. Consider the numbers named by .016; 1.6; and .16. What is the quotient if you divide the greatest number by the least number?

The quotient is _____.

8. Suppose in problem 7 you divide the least number by the greatest number. What is the quotient?

The quotient is _____.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 9

My score: _____

NAME _____

Division

$$.23 \overline{) 3.956} \longrightarrow .23 \overline{) 3.956}$$

$$\begin{array}{r} 17.2 \\ 2300 \\ 1656 \\ 1610 \\ 46 \\ 46 \\ 0 \end{array}$$

Check

$$\begin{array}{r} 17.2 \\ \times .23 \\ \hline 516 \\ 3440 \\ \hline 3.956 \end{array}$$

To check $3.956 \div .23 = 17.2$, multiply 17.2 by _____. The answer should be _____.

Divide. Check each answer.

*a**b**c*

1. $.73 \overline{) 5.986}$

$5.6 \overline{) .672}$

$.15 \overline{) 75}$

2. $2.1 \overline{) 6.93}$

$.15 \overline{) 18}$

$.083 \overline{) 6.308}$

3. $.37 \overline{) .1739}$

$1.6 \overline{) 4.48}$

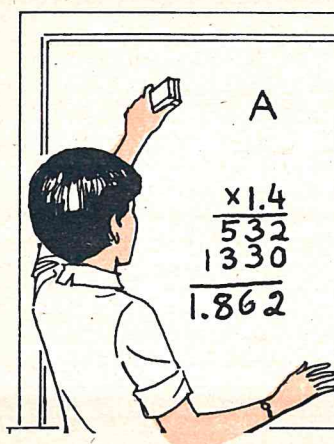
$.53 \overline{) 4.876}$

Check your answers. Record your score.

Perfect score: 9

My score: _____

Problems



A	B	C	D	E	F	G
$\begin{array}{r} \times 1.4 \\ 532 \\ 1330 \\ \hline 1.862 \end{array}$	$\begin{array}{r} 4.6 \\ \times \\ 92 \\ 4140 \\ \hline 4232 \end{array}$	$\begin{array}{r} \times 1.5 \\ 200 \\ 400 \\ \hline 60.0 \end{array}$	$\begin{array}{r} \times 2.3 \\ 285 \\ 1900 \\ \hline 2.185 \end{array}$	$\begin{array}{r} 16 \\ \times \\ 80 \\ 320 \\ \hline 4.00 \end{array}$	$\begin{array}{r} \times 100 \\ 400 \\ 2000 \\ \hline 2.400 \end{array}$	$\begin{array}{r} \times 2.4 \\ 4 \\ 20 \\ \hline .024 \end{array}$

Solve each problem.

1. Before class Yoshiko worked some multiplication problems on the board. Then she erased a numeral in each problem. When the pupils came into the classroom, she asked them to discover what numerals had been erased. What numeral was erased in problem A?

_____ was erased in problem A.

2. What numeral was erased in problem B?

_____ was erased in problem B.

3. What numeral was erased in problem C?

_____ was erased in problem C.

4. What numeral was erased in problem D?

_____ was erased in problem D.

5. What numeral was erased in problem E?

_____ was erased in problem E.

6. What numeral was erased in problem F?

_____ was erased in problem F.

7. What numeral was erased in problem G?

_____ was erased in problem G?

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 7

My score: _____

NAME _____

TEST—Division

Divide.

*a**b**c**d*

1. $8 \overline{) .184}$

$3 \overline{) .42}$

$4 \overline{) 14.8}$

$6 \overline{) .0306}$

2. $.05 \overline{) 55}$

$.003 \overline{) 36}$

$.7 \overline{) 42}$

$.04 \overline{) 84}$

3. $.4 \overline{) 9.2}$

$.6 \overline{) .84}$

$.03 \overline{) .072}$

$.004 \overline{) .028}$

4. $.006 \overline{) 5.4}$

$.07 \overline{) 4.9}$

$.007 \overline{) .63}$

$.004 \overline{) 41.2}$

5. $.36 \overline{) 9}$

$3.8 \overline{) 5.32}$

$.42 \overline{) 1.092}$

$4.5 \overline{) .3285}$

Check your answers. Record your score.

Perfect score: 20

My score: _____

PRE-TEST—Per cent

Complete the following.

a

b

1. $\frac{7}{100} = \underline{\hspace{2cm}}\%$

$\frac{9}{10} = \underline{\hspace{2cm}}\%$

2. $\frac{7}{20} = \underline{\hspace{2cm}}\%$

$\frac{13}{25} = \underline{\hspace{2cm}}\%$

3. $.07 = \underline{\hspace{2cm}}\%$

$.4 = \underline{\hspace{2cm}}\%$

4. $.135 = \underline{\hspace{2cm}}\%$

$1.35 = \underline{\hspace{2cm}}\%$

Change each per cent to a decimal.

a

b

5. $6\% = \underline{\hspace{2cm}}$

$67\% = \underline{\hspace{2cm}}$

6. $6.25\% = \underline{\hspace{2cm}}$

$125\% = \underline{\hspace{2cm}}$

Change each per cent to a fraction in simplest form.

a

b

7. $9\% = \underline{\hspace{2cm}}$

$20\% = \underline{\hspace{2cm}}$

8. $45\% = \underline{\hspace{2cm}}$

$56\% = \underline{\hspace{2cm}}$

Complete the following.

a

b

9. $1\% \text{ of } 59 = \underline{\hspace{2cm}}$

$10\% \text{ of } 75 = \underline{\hspace{2cm}}$

10. $100\% \text{ of } 84 = \underline{\hspace{2cm}}$

$45\% \text{ of } 89 = \underline{\hspace{2cm}}$

11. $75\% \text{ of } 48 = \underline{\hspace{2cm}}$

$83\% \text{ of } 147 = \underline{\hspace{2cm}}$

12. $12\% \text{ of } 180 = \underline{\hspace{2cm}}$

$7.5\% \text{ of } 840 = \underline{\hspace{2cm}}$

13. $6.75\% \text{ of } 500 = \underline{\hspace{2cm}}$

$8.4\% \text{ of } 96.7 = \underline{\hspace{2cm}}$

14. $12.5\% \text{ of } 420 = \underline{\hspace{2cm}}$

$7.1\% \text{ of } 79.3 = \underline{\hspace{2cm}}$

Check your answers. Record your score.

Perfect score: 28

My score: $\underline{\hspace{2cm}}$

NAME _____

Per centThe symbol % (read **per cent**) means $\frac{1}{100}$ or .01.

$$3\% = 3 \times \frac{1}{100}$$

$$17\% = 17 \times \frac{1}{100}$$

$$= \frac{3}{100} \text{ or } .03$$

$$= \frac{\quad}{100} \text{ or } \quad$$

Complete the following.

	<i>per cent</i>	<i>fraction</i>	<i>decimal</i>
1.	1%	_____	_____
2.	7%	_____	_____
3.	29%	_____	_____
4.	47%	_____	_____
5.	53%	_____	_____
6.	21%	_____	_____
7.	83%	_____	_____
8.	49%	_____	_____
9.	61%	_____	_____
10.	9%	_____	_____
11.	37%	_____	_____
12.	77%	_____	_____
13.	91%	_____	_____
14.	33%	_____	_____

Check your answers. Record your score.

Perfect score: 28

My score: _____

Per cent and Fractions

Study how a per cent is changed to a fraction or mixed numeral in simplest form.

$$75\% = 75 \times \frac{1}{100}$$

$$= \frac{75}{100}$$

$$= \frac{3}{4}$$

$$125\% = 125 \times \frac{1}{100}$$

$$= \frac{125}{100}$$

$$= \frac{5}{4} \text{ or } 1\frac{1}{4}$$

Study how a fraction or mixed numeral is changed to a per cent.

$$\frac{1}{2} = \frac{1}{2} \times \frac{50}{50}$$

$$= \frac{50}{100}$$

$$= 50 \times \frac{1}{100}$$

$$= 50\%$$

$$1\frac{3}{4} = \frac{7}{4} \times \frac{25}{25}$$

$$= \frac{175}{100}$$

$$= 175 \times \frac{1}{100}$$

$$= 175\%$$

Change each of the following to a fraction or mixed numeral in simplest form.

a

b

c

1. $25\% =$ _____

$45\% =$ _____

$160\% =$ _____

2. $65\% =$ _____

$120\% =$ _____

$24\% =$ _____

3. $78\% =$ _____

$55\% =$ _____

$260\% =$ _____

4. $70\% =$ _____

$144\% =$ _____

$86\% =$ _____

5. $95\% =$ _____

$40\% =$ _____

$180\% =$ _____

Change each of the following to a per cent.

a

b

c

6. $\frac{1}{5} =$ _____

$\frac{3}{4} =$ _____

$\frac{1}{20} =$ _____

7. $2\frac{7}{50} =$ _____

$\frac{3}{5} =$ _____

$1\frac{1}{5} =$ _____

8. $\frac{9}{10} =$ _____

$\frac{7}{25} =$ _____

$2\frac{1}{4} =$ _____

9. $1\frac{3}{5} =$ _____

$\frac{3}{10} =$ _____

$\frac{4}{25} =$ _____

10. $\frac{7}{20} =$ _____

$\frac{31}{50} =$ _____

$1\frac{2}{5} =$ _____

Check your answers. Record your score.

Perfect score: 30

My score: _____

Per cent and Decimals

Study how a per cent is changed to a decimal.

$12.5\% = 12.5 \times .01$

$= .125$

$1.25\% = 1.25 \times .01$

$=$ _____

Study how a decimal is changed to a per cent.

$.7 = .70$

$= 70 \times .01$

$= 70\%$

$.245 = 24.5 \times .01$

$=$ _____ %

Change each of the following to a decimal.

*a**b**c*

1. $13.5\% =$ _____ $37.5\% =$ _____ $6.25\% =$ _____

2. $7.4\% =$ _____ $4.75\% =$ _____ $2.57\% =$ _____

3. $7.75\% =$ _____ $62.5\% =$ _____ $8.7\% =$ _____

4. $32.5\% =$ _____ $8.95\% =$ _____ $9.6\% =$ _____

5. $8.3\% =$ _____ $17.5\% =$ _____ $3.75\% =$ _____

6. $.78\% =$ _____ $7.8\% =$ _____ $1.78\% =$ _____

Change each of the following to a per cent.

*a**b**c*

7. $.6 =$ _____ $.52 =$ _____ $.325 =$ _____

8. $.2475 =$ _____ $.8 =$ _____ $.65 =$ _____

9. $.146 =$ _____ $.1675 =$ _____ $.5 =$ _____

10. $.06 =$ _____ $.007 =$ _____ $.0625 =$ _____

11. $.075 =$ _____ $.0073 =$ _____ $.0009 =$ _____

12. $.9 =$ _____ $.19 =$ _____ $.389 =$ _____

Check your answers. Record your score.

Perfect score: 36

My score: _____

Problems

Solve each problem.

1. Three fourths of the teachers in Lincoln School are women. What per cent of the teachers are women?

_____ of the teachers are women.

2. Mr. Beck received 65 per cent of the votes cast. What fractional part of the votes did he receive?

He received _____ of the votes.

3. Marty made a base hit on 25% of his official times at bat. What is his batting average? (Note: Batting averages are usually expressed as thousandths.)

His average is _____.

4. Four fifths of the workers at the Haley factory are men. What per cent of the workers are men?

_____ of the workers are men.

5. A basketball player made a basket on 45% of his shots. What fractional part of his shots did he make?

He made _____ of his shots.

6. The Cubs won 61.5% of their games last year. How can this per cent be expressed as a decimal?

61.5% can be expressed as _____.

7. A certain baseball player has a fielding average of .987. How can his fielding average be expressed as a per cent?

.987 can be expressed as _____.

8. Seven tenths of the customers at the Caribbean Market were women. What per cent of the customers were women?

_____ of the customers were women.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Per cent of a Number

Study how fractions are used to find a per cent of a number.

$$75\% \text{ of } 60 = 75\% \times 60$$

$$= \frac{75}{100} \times 60$$

$$= \frac{3}{4} \times \frac{60}{1}$$

$$= \frac{3 \times 60}{4 \times 1}$$

$$= \frac{180}{4} \text{ or } 45$$

$$75\% \text{ of } 60 = \underline{\hspace{2cm}}$$

$$125\% \text{ of } 37.5 = 125\% \times 37.5$$

$$= \frac{125}{100} \times 37.5$$

$$= \frac{5}{4} \times \frac{375}{10}$$

$$= \frac{5 \times 375}{4 \times 10}$$

$$= \frac{1875}{40} \text{ or } 46 \frac{7}{8}$$

$$125\% \text{ of } 37.5 = \underline{\hspace{2cm}}$$

Complete the following. Express each mixed numeral in simplest form.

*a**b*

1. 6% of 75 = _____

108% of 63.5 = _____

2. 50% of 32 = _____

75% of 12.6 = _____

3. 20% of 68 = _____

25% of 72.8 = _____

4. 5% of 48 = _____

15% of 52.4 = _____

5. 104% of 35 = _____

136% of 7.5 = _____

6. 55% of 5.25 = _____

80% of 160 = _____

7. 166% of 60 = _____

90% of 1.8 = _____

8. 72% of 7.25 = _____

140% of 240 = _____

9. 60% of 9.8 = _____

250% of 90 = _____

10. 100% of 725 = _____

40% of 9.6 = _____

Check your answers. Record your score.

Perfect score: 20

My score: _____

Problems

Solve each problem.

1. Twenty-five per cent of the employees at the Holmes plant are women. There are 132 employees in all. How many of the employees are women?

_____ of the employees are women.

2. The enrollment at Franklin School has increased 20% from last year. The enrollment last year was 750. By how many pupils has the enrollment increased?

The enrollment has increased by _____ pupils.

3. A salesman is paid 5% of his total sales. How much would he earn in a week if his total sales were \$2800?

He would earn _____.

4. Forty per cent of the class finished their assignment before lunch. There are 25 pupils in the class. How many pupils finished before lunch?

_____ pupils finished before lunch.

5. The excise tax on a certain item is 10% of the sales price. What would be the amount of excise tax on an item which sells for \$60?

The excise tax would be _____.

6. It is estimated that a new truck will be worth 75% of its original cost after one year. How much would a 1-year old truck be worth that originally sold for \$3600?

The truck would be worth _____.

7. Fifty per cent of the people questioned in a sales survey indicated a preference for Brand X. There were 7,520 people questioned. How many of the people questioned preferred Brand X?

_____ people preferred Brand X.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 7

My score: _____

Per cent of a Number

Study how decimals are used to find a per cent of a number.

$$\begin{array}{rcl}
 34\% \text{ of } 62.3 & = & 34\% \times 62.3 \quad \text{-----} \rightarrow 62.3 \\
 & = & .34 \times 62.3 \quad \quad \quad \times .34 \\
 & = & 21.182 \quad \quad \quad \underline{2492} \\
 & & \quad \quad \quad \underline{18690} \\
 & & \quad \quad \quad 21.182
 \end{array}$$

$$34\% \text{ of } 62.3 = \underline{\hspace{2cm}}$$

Complete the following.

a

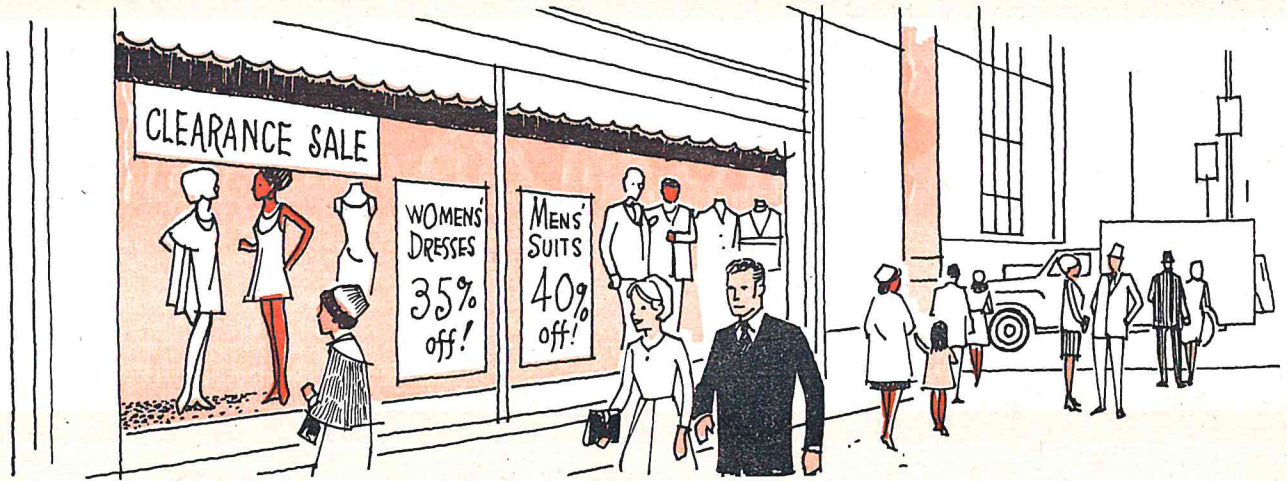
b

- | | |
|--------------------------|----------------------|
| 1. 28% of 62.5 = _____ | 7.8% of 34 = _____ |
| 2. 73% of 95 = _____ | 5.4% of 9.6 = _____ |
| 3. 9.6% of 780 = _____ | 2% of 73.6 = _____ |
| 4. 5.8% of 8.5 = _____ | 39% of 420 = _____ |
| 5. 6.25% of 700 = _____ | 125% of 62.5 = _____ |
| 6. 85% of 672 = _____ | 7.4% of 86.4 = _____ |
| 7. 9.3% of 960 = _____ | 10% of 95.6 = _____ |
| 8. 140% of 280 = _____ | 8.4% of 785 = _____ |
| 9. 25% of 386 = _____ | 18% of 70 = _____ |
| 10. 67% of 18.5 = _____ | 7.8% of 62.4 = _____ |
| 11. 107% of 600 = _____ | 8.2% of 420 = _____ |
| 12. 83.3% of 840 = _____ | 106% of 780 = _____ |

Check your answers. Record your score.

Perfect score: 24 My score: _____

Problems



Solve each problem.

1. During the sale Mr. Hansen purchased a suit. The suit normally sells for \$95. How much money did he save by purchasing the suit during the sale?

He saved _____.

2. Mrs. James purchased a dress at the sale. The regular price on the dress was \$29. How much did Mrs. James save by purchasing the dress during the sale?

She saved _____.

3. During the sale, ladies' coats are selling for 75% of the original price. The original price is \$28. What is the sale price of the coats?

The sale price is _____.

4. A sales tax of 5% is charged on all purchases. What is the sales tax on a purchase of \$78?

The sales tax is _____.

5. Charge-account customers must pay a finance charge of 1.5% of their unpaid balance. What is the finance charge to a customer who has an unpaid balance of \$82?

The finance charge is _____.

Check your answers. Record your score.

Perfect score: 5

My score: _____

TEST—Per cent

Complete the following. Express each fraction in simplest form.

	<i>fraction</i>	<i>decimal</i>	<i>per cent</i>
1.	$\frac{3}{100}$	_____	_____
2.	$\frac{1}{4}$	_____	_____
3.	$\frac{7}{20}$	_____	_____
4.	_____	.06	_____
5.	_____	.39	_____
6.	_____	.125	_____
7.	_____	_____	5%
8.	_____	_____	28%
9.	_____	_____	75%
10.	_____	_____	90%

Complete the following.

11. 25% of 64 = _____

12. 80% of 78 = _____

13. 6.25% of 700 = _____

14. 32.4% of 62.4 = _____

15. 8.4% of 96.8 = _____

Check your answers. Record your score.

Perfect score: 25

My score: _____

PRE-TEST—Review

Add or subtract.

$$\begin{array}{r} a \\ 1. \quad 1897 \\ + 698 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 37.51 \\ + 48.67 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 3.851 \\ 12.63 \\ + 6.417 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 9\frac{3}{8} \\ + 2\frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 6\frac{7}{8} \\ + 2\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 6785 \\ - 1434 \\ \hline \end{array}$$

$$\begin{array}{r} 86.767 \\ - 14.132 \\ \hline \end{array}$$

$$\begin{array}{r} 187.42 \\ - 34.567 \\ \hline \end{array}$$

$$\begin{array}{r} 9\frac{7}{8} \\ - 2\frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 6\frac{5}{6} \\ - 3\frac{9}{10} \\ \hline \end{array}$$

Multiply or divide.

$$\begin{array}{r} a \\ 3. \quad 705 \\ \times 369 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 3.141 \\ \times 14.3 \\ \hline \end{array}$$

$$37 \overline{) 4735}$$

$$.149 \overline{) 3.7697}$$

$$4. \quad \frac{4}{7} \times \frac{5}{6}$$

$$1\frac{2}{3} \times 2\frac{3}{4}$$

$$\frac{6}{7} \div \frac{2}{3}$$

$$1\frac{3}{4} \div 3\frac{1}{5}$$

Complete the following.

$$5. \quad 72 \text{ in.} = \text{_____ ft.}$$

$$10\% \text{ of } 75 = \text{_____}$$

$$6. \quad 4 \text{ min. } 9 \text{ sec.} = \text{_____ sec.}$$

$$6.5\% \text{ of } 300 = \text{_____}$$

$$7. \quad 5 \text{ gal.} = \text{_____ qt.}$$

$$25\% \text{ of } 250 = \text{_____}$$

Check your answers. Record your score.

Perfect score: 24

My score: _____

Addition

Add.

$$\begin{array}{r} a \\ 1. \quad 73 \\ + 25 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 146 \\ + 239 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 2431 \\ + 387 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 3453 \\ + 2734 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 34567 \\ + 18132 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 37 \\ 28 \\ + 18 \\ \hline \end{array}$$

$$\begin{array}{r} 124 \\ 425 \\ + 237 \\ \hline \end{array}$$

$$\begin{array}{r} 1423 \\ 362 \\ + 3474 \\ \hline \end{array}$$

$$\begin{array}{r} 3124 \\ 2435 \\ + 769 \\ \hline \end{array}$$

$$\begin{array}{r} 34125 \\ 7345 \\ + 28658 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad .7 \\ + .2 \\ \hline \end{array}$$

$$\begin{array}{r} 7.3 \\ + 3.8 \\ \hline \end{array}$$

$$\begin{array}{r} .25 \\ + .63 \\ \hline \end{array}$$

$$\begin{array}{r} 64.87 \\ + 25.36 \\ \hline \end{array}$$

$$\begin{array}{r} 2843 \\ + 7106 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 2.3 \\ 1.6 \\ + .7 \\ \hline \end{array}$$

$$\begin{array}{r} 23.4 \\ 18.3 \\ + 5.7 \\ \hline \end{array}$$

$$\begin{array}{r} 7.23 \\ 36.7 \\ + 5.25 \\ \hline \end{array}$$

$$\begin{array}{r} 28.761 \\ 18.875 \\ + 2.25 \\ \hline \end{array}$$

$$\begin{array}{r} 48.147 \\ 83.52 \\ + 42.975 \\ \hline \end{array}$$

Express each sum in simplest form.

$$\begin{array}{r} a \\ 5. \quad \frac{3}{7} \\ + \frac{2}{7} \\ \hline \end{array}$$

$$\begin{array}{r} b \\ \frac{3}{9} \\ + \frac{4}{9} \\ \hline \end{array}$$

$$\begin{array}{r} c \\ \frac{3}{8} \\ + \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} d \\ \frac{7}{10} \\ + \frac{8}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \frac{3}{4} \\ + \frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{1}{5} \\ + \frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{3} \\ + \frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{5} \\ + \frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 2\frac{2}{3} \\ + \frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{5} \\ + 2\frac{2}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 9\frac{1}{3} \\ 2\frac{5}{6} \\ + 2\frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{1}{6} \\ 3\frac{2}{3} \\ + 3\frac{3}{7} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 32

My score: _____

Problems

Solve each problem.

1. There were 163 painters, 149 carpenters, 94 bricklayers, 67 plumbers, and 101 electricians present at a building trades meeting. How many workmen were present in all?

There were _____ workmen present.

2. Mr. Williams purchased a shirt for \$5.98, a pair of slacks for \$14.50, and a tie for \$2.75. What was the total amount of his purchases?

The total amount was \$_____.

3. Mrs. McDonald purchased a $6\frac{3}{4}$ -pound ham, a $3\frac{1}{2}$ pound roast, and $2\frac{1}{4}$ pounds of ground beef. How many pounds of meat did she purchase?

She purchased _____ pounds of meat.

4. An auto racer obtained a top speed of 135.3 miles per hour. With some special equipment, this speed can be increased by 7.5 miles per hour. What would the racer's top speed be with the special equipment?

The top speed would be _____ miles per hour.

5. Two boards are placed end to end. One is $32\frac{1}{4}$ inches long and the other $34\frac{7}{8}$ inches long. What is the combined length of the boards?

The combined length is _____ inches.

6. During a 4-day period Mr. Mason drove 18.7 miles, 25.7 miles, 32.9 miles, and 16.6 miles. How many miles did he drive during the period?

He drove _____ miles.

7. A relief pitcher pitched $2\frac{1}{3}$ innings Monday, $1\frac{2}{3}$ innings Wednesday, and $3\frac{2}{3}$ innings Saturday. How many innings did he pitch on those 3 days?

He pitched _____ innings.

Check your answers. Record your score.

Perfect score: 7

My score: _____

Subtraction

Subtract.

$$\begin{array}{r} a \\ 1. \quad 57 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 254 \\ -43 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 4124 \\ -102 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 6785 \\ -1132 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 54322 \\ -3112 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 69 \\ -14 \\ \hline \end{array}$$

$$\begin{array}{r} 678 \\ -167 \\ \hline \end{array}$$

$$\begin{array}{r} 2576 \\ -1427 \\ \hline \end{array}$$

$$\begin{array}{r} 6754 \\ -3292 \\ \hline \end{array}$$

$$\begin{array}{r} 37125 \\ -14018 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 78 \\ -29 \\ \hline \end{array}$$

$$\begin{array}{r} 837 \\ -229 \\ \hline \end{array}$$

$$\begin{array}{r} 7876 \\ -4922 \\ \hline \end{array}$$

$$\begin{array}{r} 8757 \\ -7998 \\ \hline \end{array}$$

$$\begin{array}{r} 67852 \\ -28909 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad .7 \\ -.2 \\ \hline \end{array}$$

$$\begin{array}{r} 1.89 \\ -.92 \\ \hline \end{array}$$

$$\begin{array}{r} .76 \\ -.19 \\ \hline \end{array}$$

$$\begin{array}{r} 6.752 \\ -.281 \\ \hline \end{array}$$

$$\begin{array}{r} 1.234 \\ -.125 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 2.5 \\ -1.6 \\ \hline \end{array}$$

$$\begin{array}{r} 12.34 \\ -7.53 \\ \hline \end{array}$$

$$\begin{array}{r} 12.56 \\ -4.27 \\ \hline \end{array}$$

$$\begin{array}{r} 7.563 \\ -1.275 \\ \hline \end{array}$$

$$\begin{array}{r} 78.675 \\ -15.689 \\ \hline \end{array}$$

Express each difference in simplest form.

$$\begin{array}{r} 6. \quad \frac{6}{7} \\ -\frac{3}{7} \\ \hline \end{array}$$

$$\begin{array}{r} b \quad \frac{7}{9} \\ -\frac{5}{9} \\ \hline \end{array}$$

$$\begin{array}{r} c \quad \frac{11}{12} \\ -\frac{7}{12} \\ \hline \end{array}$$

$$\begin{array}{r} d \quad \frac{15}{16} \\ -\frac{7}{16} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \frac{3}{4} \\ -\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{9}{10} \\ -\frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{3} \\ -\frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{11}{12} \\ -\frac{5}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 2\frac{1}{2} \\ -\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 4\frac{2}{3} \\ -\frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 8\frac{1}{3} \\ -6\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 6\frac{1}{4} \\ -3\frac{3}{5} \\ \hline \end{array}$$

Check your answers. Record your score.

Perfect score: 37 My score: _____

Problems

Solve each problem.

1. In the election for mayor, Jennings received 9,775 votes and Vaughn received 6,989 votes. How many more votes did Jennings receive than Vaughn?

Jennings received _____ more votes.

2. Last week Mr. Darnell used 16.9 gallons of gasoline. This week he used 18.7 gallons. How much more gasoline did he use this week than last week?

He used _____ more gallons this week.

3. A $28\frac{3}{4}$ -inch piece of rope is to be cut from a rope which is $72\frac{1}{2}$ inches long. How much rope will be left?

_____ inches of rope will be left.

4. Ten years ago the population of Oakwood was 91,475. Today the population is 135,924. How much has the population of Oakwood increased during the ten-year period?

The population has increased _____.

5. Last season a baseball player had a batting average of .289. This season his average is .314. What is the difference between these two averages?

The difference is _____.

6. Charles weighs $107\frac{1}{2}$ pounds. His younger brother weighs $98\frac{3}{4}$ pounds. What is the difference between their weights?

The difference is _____ pounds.

7. During a sale Mrs. McGill purchased a dress for \$19.88. The dress normally sells for \$27.50. How much money did Mrs. McGill save by purchasing the dress at the sale?

She saved \$_____.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 7

My score: _____

Multiplication

Multiply.

$$\begin{array}{r} a \\ 1. \quad 32 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} b \\ 324 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} c \\ 578 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} d \\ 3213 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} e \\ 6757 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 24 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 178 \\ \times 57 \\ \hline \end{array}$$

$$\begin{array}{r} 4037 \\ \times 69 \\ \hline \end{array}$$

$$\begin{array}{r} 678 \\ \times 305 \\ \hline \end{array}$$

$$\begin{array}{r} 4579 \\ \times 614 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 42 \\ \times 1.7 \\ \hline \end{array}$$

$$\begin{array}{r} 12.8 \\ \times 6.2 \\ \hline \end{array}$$

$$\begin{array}{r} 3.14 \\ \times 5.7 \\ \hline \end{array}$$

$$\begin{array}{r} 1.78 \\ \times 3.64 \\ \hline \end{array}$$

$$\begin{array}{r} 7.543 \\ \times 31.7 \\ \hline \end{array}$$

Express each product in simplest form.

$$4. \quad \begin{array}{r} a \\ \frac{1}{2} \times \frac{3}{4} \end{array}$$

$$\begin{array}{r} b \\ \frac{4}{7} \times \frac{4}{5} \end{array}$$

$$\begin{array}{r} c \\ \frac{7}{8} \times \frac{5}{6} \end{array}$$

$$\begin{array}{r} d \\ \frac{2}{7} \times \frac{7}{8} \end{array}$$

$$5. \quad 2 \times \frac{3}{4}$$

$$\frac{7}{8} \times 5$$

$$6\frac{1}{2} \times \frac{7}{8}$$

$$1\frac{3}{4} \times 2\frac{2}{3}$$

Check your answers. Record your score.

Perfect score: 23

My score: _____

Problems

Solve each problem.

1. A truck is carrying 164 cartons of merchandise. Each carton weighs 55 pounds. What is the total weight of the merchandise?

The total weight is _____ pounds.

2. To pay for an installment purchase, Mr. Ford is to pay \$31.78 a month for 12 months. What is the total amount of these payments?

The total amount is \$_____.

3. Mrs. Loving purchased six $1\frac{1}{4}$ -pound loaves of bread. What was the total weight of the bread that she purchased?

The total weight was _____ pounds.

4. Miss Holloway has 12 books of trading stamps. There are 1,200 stamps in each book. How many stamps does she have in all?

She has _____ stamps.

5. What would be the total cost of 3 pairs of slacks at \$14.95 each?

The total cost would be \$_____.

6. A light truck can carry $\frac{3}{4}$ -ton of gravel. The truck is now $\frac{2}{3}$ loaded. What part of a ton is now loaded on the truck?

_____ of a ton is loaded on the truck.

7. Gasoline costs \$.42 a gallon. What would be the cost of 15.5 gallons of gasoline?

The cost would be \$_____.

8. It is $1\frac{1}{4}$ miles around Memorial Park. David ran $\frac{2}{3}$ of the way around the park. How far did he run?

He ran _____ of a mile.

1.

2.

3.

4.

5.

6.

7.

8.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Division

Divide.

*a**b**c**d**e*

1. $4 \overline{) 76}$

$5 \overline{) 184}$

$6 \overline{) 967}$

$8 \overline{) 4968}$

$7 \overline{) 8953}$

2. $25 \overline{) 375}$

$67 \overline{) 4675}$

$24 \overline{) 974}$

$83 \overline{) 13861}$

$43 \overline{) 36952}$

3. $.6 \overline{) 189}$

$.27 \overline{) 243}$

$5.9 \overline{) 20.06}$

$.61 \overline{) 1.708}$

$.049 \overline{) 2.009}$

Express each quotient in simplest form.

*a**b**c**d*

4. $\frac{1}{2} \div \frac{3}{4}$

$2 \div \frac{7}{8}$

$\frac{8}{9} \div 4$

$1\frac{3}{8} \div \frac{2}{3}$

5. $\frac{5}{6} \div 1\frac{1}{3}$

$2 \div 3\frac{1}{7}$

$8\frac{3}{8} \div 3$

$3\frac{3}{4} \div 1\frac{2}{3}$

Check your answers. Record your score.

Perfect score: 23

My score: _____

Problems

Solve each problem.

1. Harriet checked out a library book which contained 276 pages. She plans to read the same number of pages each day. How many pages must she read each day in order to complete the book in 6 days?

She must read _____ pages each day.

2. Mr. Andrews has driven his car 8,239 miles in 11 months. He drives the same number of miles each month. How many miles does he drive each month?

He drives _____ miles each month.

3. There are 83,189 items to be packed. Twenty-four items can be packed in each case. How many cases can be filled? How many items will be left over?

_____ cases can be filled.

_____ items will be left over.

4. The total cost of 8 spark plugs was \$10.32. What was the cost of each spark plug?

The cost of each spark plug was \$_____.

5. In traveling 121.5 miles, Mr. Lane's car used 9 gallons of gasoline. How many miles were traveled for each gallon of gasoline used?

_____ miles were traveled for each gallon used.

6. There are 9 gallons of punch in a large container. How many $\frac{3}{4}$ -gallon jugs can be filled by using the punch from the large container?

_____ jugs can be filled.

7. A ribbon $6\frac{3}{4}$ -feet long is to be cut into 4 pieces. Each piece is to be the same length. What will be the length of each piece?

Each piece will be _____ feet long.

1.

2.

3.

4.

5.

6.

7.

Check your answers. Record your score.

Perfect score: 8

My score: _____

Measurement

Complete the following.

*a**b*

1. 60 in. = _____ ft.

6 ft. 9 in. = _____ in.

2. 18 ft. = _____ yd.

6 yd. 2 ft. = _____ ft.

3. 4 yd. = _____ in.

3 yd. 6 in. = _____ in.

4. 180 sec. = _____ min.

4 min. 16 sec. = _____ sec.

5. 5 hr. = _____ min.

2 da. 12 hr. = _____ hr.

6. 5 qt. = _____ pt.

3 qt. 1 pt. = _____ pt.

7. 20 qt. = _____ gal.

4 gal. 2 qt. = _____ qt.

8. 10 gal. = _____ qt.

2 pt. 1 c. = _____ c.

Find the area of each rectangle described below.

	<i>length</i>	<i>width</i>	<i>area</i>
9.	17 in.	9 in.	_____ sq. in.
10.	$14\frac{1}{2}$ ft.	6 ft.	_____ sq. ft.
11.	$3\frac{1}{2}$ yd.	$2\frac{1}{2}$ yd.	_____ sq. yd.

Find the area of each right triangle described below.

	<i>base</i>	<i>height</i>	<i>area</i>
12.	8 ft.	7 ft.	_____ sq. ft.
13.	12 in.	$6\frac{1}{2}$ in.	_____ sq. in.
14.	$7\frac{1}{2}$ yd.	5 yd.	_____ sq. yd.

Find the volume of each rectangular solid described below.

	<i>length</i>	<i>width</i>	<i>height</i>	<i>volume</i>
15.	6 ft.	9 ft.	4 ft.	_____ cu. ft.
16.	$5\frac{1}{2}$ in.	3 in.	4 in.	_____ cu. in.
17.	$3\frac{1}{2}$ yd.	$2\frac{1}{2}$ yd.	3 yd.	_____ cu. yd.

Check your answers. Record your score.

Perfect score: 25

My score: _____

Per cent

Complete the following. Express each fraction in simplest form.

	<i>fraction</i>	<i>decimal</i>	<i>per cent</i>
1.	$\frac{1}{4}$	_____	_____
2.	$\frac{1}{2}$	_____	_____
3.	$\frac{3}{5}$	_____	_____
4.	_____	.4	_____
5.	_____	.03	_____
6.	_____	.625	_____
7.	_____	_____	7%
8.	_____	_____	37.5%
9.	_____	_____	95%

Complete the following.

10. 10% of 240 = _____
11. 50% of 348 = _____
12. 25% of 484 = _____
13. 6.5% of 350 = _____
14. 8.75% of 480 = _____
15. 12.5% of 840 = _____
16. 7.3% of 640 = _____

Check your answers. Record your score.

Perfect score: 25

My score: _____

Problems

Solve each problem.

1. A certain basketball player is 6 feet 9 inches tall. What is the player's height in inches?

1.

His height is _____ inches.

2. At the Petroleum Building, 25% of the workers use the Rapid Transit System. There are 1,248 workers in all. How many use the Rapid Transit System?

2.

_____ workers use the Rapid Transit System.

3. What is the area of a rectangular piece of cardboard which is 36 inches long and $12\frac{1}{2}$ inches wide?

3.

The area is _____ square inches.

4. Yesterday the school lunchroom served 624 pints of milk. How many quarts of milk was this?

4.

It was _____ quarts of milk.

5. Mrs. Kukla has a flower garden which is shaped like a right triangle. The base of the triangle is 16 feet and the height is $8\frac{1}{2}$ feet. What is the area of the triangle?

5.

The area is _____ square feet.

6. Eugene has a box which is 28 inches long, $16\frac{1}{2}$ inches wide, and $8\frac{1}{2}$ inches deep. What is the volume of the box?

6.

The volume is _____ cubic inches.

7. The state sales tax is 5%. At that rate, what would be the sales tax on a purchase of \$78?

7.

The sales tax would be \$_____.

8. The ball game lasted 2 hours and 30 minutes. How many minutes did the game last?

8.

The game lasted _____ minutes.

Check your answers. Record your score.

Perfect score: 8 My score: _____

TEST—Review

Complete the following as indicated.

a

$$\begin{array}{r} 1. \quad 87.57 \\ -24.894 \\ \hline \end{array}$$

b

$$\begin{array}{r} 6\frac{5}{8} \\ -4\frac{5}{6} \\ \hline \end{array}$$

c

$$\begin{array}{r} 315.42 \\ 15.373 \\ +684.12 \\ \hline \end{array}$$

d

$$\begin{array}{r} 9\frac{3}{8} \\ +4\frac{1}{2} \\ \hline \end{array}$$

2. $\begin{array}{r} 625 \\ \times 407 \\ \hline \end{array}$

$25 \overline{)787}$

$\begin{array}{r} 1.414 \\ \times 37.4 \\ \hline \end{array}$

$3.7 \overline{)16.65}$

3. $\frac{5}{8} \times \frac{3}{4}$

$\frac{7}{8} \div \frac{2}{3}$

$1\frac{1}{3} \times 4\frac{5}{8}$

$4\frac{2}{3} \div \frac{3}{5}$

Complete the following.

a

4. 5 ft. 9 in. = _____ in. 75% of 32 = _____

5. 24 qt. = _____ gal. 5.5% of 435 = _____

Find the area of each rectangle described below.

	<i>length</i>	<i>width</i>	<i>area</i>
6.	13 ft.	9 ft.	_____ sq. ft.
7.	$6\frac{1}{2}$ in.	$5\frac{1}{2}$ in.	_____ sq. in.

Find the area of each right triangle described below.

	<i>base</i>	<i>height</i>	<i>area</i>
8.	$7\frac{1}{2}$ yd.	3 yd.	_____ sq. yd.
9.	9 in.	$6\frac{1}{4}$ in.	_____ sq. in.

Check your answers. Record your score.

Perfect score: 20

My score: _____

Answers for SPECTRUM MATHEMATICS (Green Book)

Page 1

1. 435; 201; 636 2. 435; 123; 312 3. 759

Page 2

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
1.	38	50	68	95	125	122
2.	41	48	15	85	89	179
3.	769	761	975	1390	601	1520
4.	613	433	592	527	1575	2899
5.	7788	10010	10263	17190	11011	
6.	3131	1779	44298	28693	36897	
7.	85758	59473	84125	55133	81222	
8.	51123	23008	39019	55705	69676	
9.	106	1697	9542	72937	84173	

Page 3

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
1.	39	27	53	45	59	87
2.	59	78	78	78	69	78
3.	81	63	77	146	103	148
4.	124	151	131	111	102	152
5.	59	80	115	127	68	124
6.	186	134	109	178	180	216

Page 4

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
1.	54	94	60	69	29	38
2.	43	43	54	25	10	31
3.	25	48	34	19	7	17
4.	127	156	268	107	226	59
5.	70	191	286	93	390	485
6.	87	283	376	79	437	549

Page 5

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	588	846	858	1267	1422
2.	6408	8343	9372	8733	11356
3.	78553	81378	97121	91967	91170
4.	1262	11411	12241	91272	73549
5.	60321	80121	9023	46838	53757
6.	1684	15287	13564	104566	103743
7.	42869	48277	76063	85022	79379

Page 6

1. 528; 746; 1274 4. 15342
2. 5281; 7390; 12671 5. 94400
3. 42165; 34895; 77060 6. 86889

Page 7

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	412	217	351	179	404
2.	3902	1929	4895	1889	849
3.	3031	1434	2088	2314	5048
4.	48913	39516	48917	53750	24321
5.	20937	23476	38708	34809	12299

Page 8

1. 500; 385; 115 3. 1464 5. 36332
2. 1516; 842; 674 4. 48459 6. 13687

Page 9

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
1.	38	53	58	73	139	135
2.	55	51	9	66	58	165
3.	887	965	877	661	1112	1622
4.	281	508	281	1788	1788	998
5.	8699	6840	10087	11324	11040	

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
6.	5114	4079	5670	3883	16809
7.	73545	87550	75520	90417	95732
8.	42101	48075	10244	29289	7718
9.	99	1493	11796	88088	84788

Page 10

1. add; 1687 4. subtract; 3695
2. subtract; 427 5. add; 61357
3. add; 3043 6. add; 60114

Page 11

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	51	158	154	276	631
2.	48	12	79	169	97
3.	399	7089	3686	7845	30385
4.	14313	12812	85374	53966	80097
5.	subtract; 3926		6. add; 62842		7. 95066

Page 12

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	99	192	608	3456	2468
2.	33945	2793	15504	27082	260235
3.	39483	250560	171864	2181114	4192533
4.	9	37	17 r4	325	38
5.	147 r41	135	785	2444 r8	724 r62

Page 13

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>
1.	0	0	0	0	7	6	1	5
2.	16	4	8	14	12	10	6	18
3.	27	21	15	0	3	18	12	9
4.	16	12	20	32	28	0	36	4
5.	40	10	35	25	20	15	5	0
6.	48	12	54	42	36	30	6	18
7.	63	49	42	0	7	35	56	28
8.	0	40	64	72	32	24	48	56
9.	27	81	72	9	18	63	54	36

Page 14

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>
1.	2	3	5	4	6	9	8	1
2.	9	6	7	8	4	5	2	1
3.	0	5	3	4	8	6	1	7
4.	5	2	1	3	8	6	9	4
5.	6	9	0	2	5	3	8	1
6.	5	4	7	1	2	6	9	8
7.	0	3	2	8	7	9	5	4
8.	2	0	7	9	6	4	3	5
9.	5	3	4	7	1	9	0	6

Page 15

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	96	92	246	624	570
2.	842	492	723	2505	954
3.	2349	4304	3810	6678	4257
4.	2066	9648	9516	10028	9771
5.	8868	40166	43434	32304	35415

Page 16

1. 24; 5; 120 3. 365; 3; 1095 5. 6802
2. 77; 7; 539 4. 3875 6. 20755

Page 17

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	1197	1536	4725	6480	11592
2.	14337	76820	50328	172044	651636
3.	88382	300048	90272	537536	
4.	1243380	2411010	1889280	3449412	

Page 18

1. 28; 35; 980
2. 47; 19; 893
3. 321; 52; 16692
4. 104224
5. 105264
6. 525600

Page 19

- | a | b | c | d | e |
|-------|-------|---------|--------|-----|
| 1. 23 | 19 r1 | 24 | 19 r1 | 135 |
| 2. 75 | 98 r2 | 1346 r4 | 526 r5 | 709 |

Page 20

1. 92; 5; 18
2. 258
3. 305
4. 68; 1
5. 3258
6. 384; 3

Page 21

- | a | b | c | d | e |
|------------|---------|---------|---------|-----|
| 1. 32 r10 | 27 | 45 r9 | 26 r25 | 92 |
| 2. 142 r27 | 346 r10 | 356 r49 | 525 r25 | 351 |

Page 22

1. 988; 26; 38
2. 41; 3
3. 309; 25
4. 75
5. 225
6. 752; 28

Page 23

- | a | b | c | d | e |
|-----------|--------|-------|---------|----------|
| 1. 245 | 1735 | 3080 | 12942 | 29436 |
| 2. 3145 | 2592 | 32844 | 10982 | 117612 |
| 3. 20856 | 222390 | 76245 | 526787 | 577382 |
| 4. 17 r12 | 12 r32 | 38 | 122 r4 | 157 |
| 5. 206 r2 | 63 r3 | 425 | 468 r11 | 1062 r17 |

Page 24

1. multiply; 16250
2. divide; 7
3. multiply; 43680
4. divide; 77; 15
5. divide; 123; 10
6. multiply; 524160

Page 25

- | a | b | c | d | e |
|----------|--------|----------|---------|---------|
| 1. 86 | 342 | 4056 | 8106 | 50778 |
| 2. 805 | 3648 | 5115 | 86352 | 137566 |
| 3. 43776 | 54825 | 426512 | 1366530 | 1126428 |
| 4. 4 | 35 | 14 r39 | 116 r24 | 58 r20 |
| 5. 135 | 27 r15 | 1016 r32 | 3844 r5 | 434 |

Page 26

- | a | b | c | d |
|---------------------|------------------|-----------------|-----------------|
| 1. $\frac{3}{10}$ | $\frac{16}{35}$ | $\frac{10}{21}$ | $\frac{4}{25}$ |
| 2. $\frac{1}{10}$ | $\frac{5}{24}$ | $\frac{9}{28}$ | $\frac{4}{15}$ |
| 3. $1\frac{1}{5}$ | $4\frac{4}{9}$ | $4\frac{1}{2}$ | $2\frac{2}{3}$ |
| 4. $13\frac{1}{3}$ | $12\frac{1}{2}$ | $\frac{2}{3}$ | $10\frac{1}{2}$ |
| 5. $2\frac{11}{12}$ | $2\frac{23}{56}$ | $6\frac{2}{3}$ | 8 |

Page 27

- | a | b | c | d | a | b |
|------------------|---------------|---------------|---------------|--------------------|---------------|
| 1. $\frac{1}{2}$ | $\frac{3}{4}$ | $\frac{1}{3}$ | $\frac{1}{5}$ | 6. $\frac{4}{5}$ | $\frac{7}{8}$ |
| 2. $\frac{3}{5}$ | $\frac{3}{8}$ | $\frac{5}{6}$ | $\frac{5}{8}$ | 7. $\frac{5}{6}$ | $\frac{7}{9}$ |
| | | | | 8. $\frac{4}{7}$ | $\frac{3}{5}$ |
| | | | | 9. $\frac{5}{8}$ | $\frac{2}{7}$ |
| | | | | 10. $\frac{9}{10}$ | $\frac{4}{9}$ |

Page 28

- | a | b | c | d | e |
|------|-----|-----|-----|-----|
| 1. P | I | M | I | M |
| 2. I | P | M | P | M |
| 3. M | P | M | I | I |
-
- | a | b | c | a | b | c | d |
|-------------------|----------------|----------------|------------------|-----|-----------------|----------------|
| 4. $2\frac{1}{2}$ | $1\frac{4}{5}$ | $3\frac{1}{2}$ | 7. $\frac{1}{5}$ | 4 | $3+\frac{3}{4}$ | $9\frac{1}{3}$ |
| 5. $2\frac{1}{4}$ | $1\frac{1}{5}$ | $2\frac{2}{3}$ | 8. $\frac{2}{3}$ | 5 | $6+\frac{2}{5}$ | $8\frac{7}{8}$ |
| 6. $4\frac{2}{3}$ | $3\frac{1}{3}$ | $3\frac{1}{5}$ | 9. $\frac{1}{8}$ | 2 | $3+\frac{1}{3}$ | $5\frac{3}{7}$ |

Page 29

- | a | b | c | d | a | b | c | d | e | f |
|-------------------|----------------|----------------|-----------------|------------------|---------------|---------------|----------------|-----------------|----------------|
| 1. $\frac{4}{5}$ | $\frac{7}{8}$ | $\frac{4}{7}$ | $\frac{4}{5}$ | 4. $\frac{5}{6}$ | $\frac{7}{8}$ | $\frac{3}{7}$ | $\frac{9}{10}$ | $\frac{11}{12}$ | $\frac{4}{11}$ |
| 2. $\frac{5}{6}$ | $\frac{4}{7}$ | $\frac{3}{8}$ | $\frac{3}{4}$ | 5. $\frac{3}{5}$ | $\frac{6}{7}$ | $\frac{5}{8}$ | $\frac{7}{10}$ | $\frac{11}{15}$ | $\frac{7}{12}$ |
| 3. $\frac{7}{10}$ | $\frac{5}{12}$ | $\frac{9}{11}$ | $\frac{11}{15}$ | | | | | | |

Page 30

- | a | b | c | d | a | b | c | d |
|-------------------|----------------|----------------|----------------|--------------------|-----------------|-----------------|------------------|
| 1. $\frac{18}{6}$ | $\frac{19}{6}$ | $\frac{16}{8}$ | $\frac{21}{8}$ | 4. $\frac{37}{10}$ | $\frac{59}{11}$ | $\frac{32}{3}$ | $\frac{29}{2}$ |
| 2. $\frac{10}{5}$ | $\frac{13}{5}$ | $\frac{72}{9}$ | $\frac{76}{9}$ | 5. $\frac{55}{8}$ | $\frac{59}{10}$ | $\frac{111}{7}$ | $\frac{161}{12}$ |
| 3. $\frac{12}{5}$ | $\frac{51}{8}$ | $\frac{11}{3}$ | $\frac{13}{3}$ | | | | |

Page 31

- | a | b | c | d | a | b | c | d |
|-------------------|-----------------|-----------------|-----------------|--------------------|----------------|-----------------|-----------------|
| 1. $\frac{1}{6}$ | $\frac{3}{8}$ | $\frac{1}{12}$ | $\frac{3}{10}$ | 4. $\frac{18}{35}$ | $\frac{2}{27}$ | $\frac{15}{56}$ | $\frac{6}{35}$ |
| 2. $\frac{9}{20}$ | $\frac{12}{35}$ | $\frac{8}{15}$ | $\frac{15}{56}$ | 5. $\frac{49}{64}$ | $\frac{4}{9}$ | $\frac{8}{27}$ | $\frac{24}{35}$ |
| 3. $\frac{8}{15}$ | $\frac{1}{16}$ | $\frac{15}{28}$ | $\frac{21}{40}$ | 6. $\frac{40}{63}$ | $\frac{5}{24}$ | $\frac{25}{42}$ | $\frac{15}{64}$ |

Page 32

- | a | b | c | d |
|--------------------|-----------------|----------------|-----------------|
| 1. $\frac{4}{6}$ | $\frac{8}{10}$ | $\frac{9}{12}$ | $\frac{3}{18}$ |
| 2. $\frac{4}{16}$ | $\frac{10}{12}$ | $\frac{5}{15}$ | $\frac{8}{16}$ |
| 3. $\frac{12}{20}$ | $\frac{8}{20}$ | $\frac{6}{21}$ | $\frac{16}{36}$ |

Page 33

- | | | |
|----------------------|----------|----|
| 1. 1,2,3,6 | 1,2 | 2 |
| 2. 1,5 | 1 | 1 |
| 3. 1,2,3,4,6,12 | 1,3 | 3 |
| 4. 1,2,5,10 | 1,2,5,10 | 10 |
| 5. 1,2,7,14 | 1,2 | 2 |
| 6. 1,3,5,15 | 1 | 1 |
| 7. 1,2,3,4,6,8,12,24 | 1,2,3,6 | 6 |

Page 34

- | a | b | c | a | b | c |
|-------------------|----------------|----------------|-------------------|----------------|----------------|
| 1. $\frac{4}{5}$ | $\frac{1}{2}$ | $\frac{2}{3}$ | 4. $6\frac{2}{3}$ | $\frac{5}{6}$ | $3\frac{3}{4}$ |
| 2. $2\frac{1}{2}$ | $3\frac{2}{3}$ | $5\frac{4}{5}$ | 5. $\frac{4}{5}$ | $3\frac{7}{9}$ | $\frac{1}{2}$ |
| 3. $\frac{2}{3}$ | $5\frac{3}{4}$ | $5\frac{5}{6}$ | | | |

Page 35

- | a | b | c | d |
|--------------------|-----------------|----------------|-----------------|
| 1. $\frac{3}{10}$ | $\frac{8}{15}$ | $\frac{4}{9}$ | $\frac{5}{42}$ |
| 2. $\frac{3}{5}$ | $\frac{5}{9}$ | $\frac{4}{7}$ | $\frac{4}{15}$ |
| 3. $\frac{1}{3}$ | $\frac{2}{3}$ | $\frac{1}{4}$ | $\frac{1}{9}$ |
| 4. $\frac{9}{20}$ | $\frac{3}{8}$ | $\frac{4}{35}$ | $\frac{12}{25}$ |
| 5. $\frac{10}{21}$ | $\frac{21}{80}$ | $\frac{1}{2}$ | $\frac{27}{49}$ |

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- | | | | |
|-------------------|------------------|------------------|------------------|
| 1. $\frac{3}{8}$ | 3. $\frac{4}{7}$ | 5. $\frac{2}{9}$ | 7. $\frac{1}{2}$ |
| 2. $\frac{8}{15}$ | 4. $\frac{1}{6}$ | 6. $\frac{1}{2}$ | |

Page 37

- | a | b | c | d |
|-------------------|----------------|----------------|-----------------|
| 1. $3\frac{1}{3}$ | $4\frac{4}{5}$ | $4\frac{1}{2}$ | $5\frac{1}{4}$ |
| 2. $7\frac{1}{2}$ | $1\frac{1}{3}$ | $4\frac{1}{2}$ | 8 |
| 3. $7\frac{1}{2}$ | $6\frac{2}{3}$ | $6\frac{4}{5}$ | $18\frac{2}{3}$ |

Answers for SPECTRUM MATHEMATICS (Green Book)

Page 38

1. 2 3. $10\frac{1}{2}$ 5. 3 7. 16; 8
2. $8\frac{1}{3}$ 4. $9\frac{3}{8}$ 6. $7\frac{1}{2}$

Page 39

- | | | | | | | | | |
|--------------------|-----------------|----------------|----------------|----|-------------------|----------------|-----------------|-----------------|
| a | b | c | d | | a | b | c | d |
| 1. $6\frac{8}{15}$ | $4\frac{1}{12}$ | $4\frac{1}{6}$ | $7\frac{1}{9}$ | 3. | $8\frac{3}{4}$ | $6\frac{3}{8}$ | $5\frac{1}{4}$ | $12\frac{1}{2}$ |
| 2. $5\frac{2}{5}$ | $4\frac{1}{4}$ | $6\frac{2}{5}$ | $3\frac{1}{5}$ | 4. | $32\frac{15}{16}$ | $6\frac{1}{2}$ | $1\frac{9}{16}$ | $20\frac{5}{6}$ |

Page 40

1. $3\frac{5}{9}$ 3. $31\frac{7}{8}$ 5. $14\frac{1}{16}$ 7. $3\frac{15}{16}$ 9. $3\frac{3}{4}$
2. 6 4. $4\frac{1}{12}$ 6. $3\frac{3}{8}$ 8. $5\frac{1}{4}$

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- | | | | | | | | | |
|--------------------|-----------------|-----------------|----------------|----|------------------|-----------------|------------------|-----------------|
| a | b | c | d | | a | b | c | d |
| 1. $\frac{5}{12}$ | $\frac{35}{48}$ | $\frac{10}{21}$ | $\frac{9}{64}$ | 4. | $13\frac{1}{3}$ | $1\frac{3}{5}$ | 8 | $3\frac{3}{4}$ |
| 2. $\frac{10}{21}$ | $\frac{28}{45}$ | $\frac{3}{4}$ | $\frac{1}{2}$ | 5. | $3\frac{17}{21}$ | $6\frac{3}{10}$ | $2\frac{14}{15}$ | $11\frac{2}{3}$ |
| 3. $1\frac{1}{5}$ | $4\frac{2}{7}$ | 4 | $6\frac{2}{3}$ | | | | | |

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- | | | | | | | | | |
|-------------------|----------------|------------------|-----------------|----|-----------------|------------------|------------------|----------------|
| a | b | c | d | | a | b | c | d |
| 1. $\frac{4}{7}$ | $\frac{2}{3}$ | $\frac{5}{8}$ | $\frac{3}{5}$ | 4. | $3\frac{1}{4}$ | $4\frac{23}{40}$ | $5\frac{1}{9}$ | $1\frac{3}{4}$ |
| 2. $1\frac{1}{6}$ | $1\frac{1}{4}$ | $\frac{11}{24}$ | $\frac{11}{40}$ | 5. | $2\frac{5}{18}$ | $4\frac{1}{2}$ | $10\frac{7}{30}$ | 9 |
| 3. $2\frac{3}{5}$ | $\frac{1}{8}$ | $5\frac{13}{30}$ | $3\frac{9}{10}$ | | | | | |

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- | | | | | |
|-------------------|----------------|----------------|----------------|----------------|
| 1. $\frac{3}{5}$ | $\frac{6}{7}$ | $1\frac{1}{4}$ | $1\frac{1}{2}$ | $1\frac{3}{4}$ |
| 2. $\frac{1}{6}$ | $\frac{1}{2}$ | $\frac{3}{7}$ | $\frac{5}{9}$ | $\frac{1}{2}$ |
| 3. $\frac{9}{10}$ | $1\frac{1}{3}$ | $\frac{3}{4}$ | $\frac{5}{6}$ | $1\frac{3}{5}$ |
| 4. $\frac{2}{3}$ | $\frac{5}{8}$ | $\frac{1}{3}$ | $\frac{1}{2}$ | $\frac{3}{8}$ |
| 5. $1\frac{1}{4}$ | $\frac{1}{3}$ | $1\frac{1}{5}$ | $\frac{2}{5}$ | $\frac{6}{7}$ |

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1. $\frac{1}{2}$ 3. $\frac{3}{4}$ 5. $\frac{1}{6}$ 7. $1\frac{1}{4}$
2. $\frac{3}{7}$ 4. $\frac{5}{8}$ 6. $1\frac{1}{2}$ 8. $\frac{5}{12}$

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- | | | |
|-----------------------------------|--------------------------------|-----------------------|
| a | b | c |
| 1. $2 \times 2 \times 2$ | 3×3 | 2×3 |
| 2. $2 \times 3 \times 3$ | 2×5 | $2 \times 2 \times 3$ |
| 3. 5×5 | 3×7 | $2 \times 2 \times 7$ |
| 4. $2 \times 2 \times 3 \times 3$ | 5×7 | $2 \times 3 \times 5$ |
| 5. $3 \times 3 \times 5$ | $2 \times 3 \times 7$ | 7×7 |
| 6. $2 \times 5 \times 5$ | $2 \times 2 \times 2 \times 7$ | 3×17 |

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- | | | | | | |
|-------|-----|-----|--------|-----|-----|
| a | b | c | a | b | c |
| 1. 24 | 12 | 18 | 4. 36 | 42 | 15 |
| 2. 4 | 8 | 9 | 5. 120 | 60 | 10 |
| 3. 15 | 14 | 20 | 6. 60 | 84 | 72 |

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- | | | | |
|---------------------|-----------------|-----------------|----------------|
| a | b | c | d |
| 1. $\frac{9}{10}$ | $\frac{13}{21}$ | $1\frac{1}{4}$ | $1\frac{1}{8}$ |
| 2. $\frac{5}{12}$ | $\frac{1}{10}$ | $\frac{1}{2}$ | $\frac{1}{5}$ |
| 3. $1\frac{31}{40}$ | $\frac{1}{12}$ | $1\frac{5}{18}$ | $\frac{8}{15}$ |

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1. $\frac{5}{12}$ 3. $1\frac{11}{15}$ 5. $1\frac{1}{10}$ 7. $1\frac{7}{40}$
2. $\frac{1}{12}$ 4. $\frac{5}{8}$ 6. $\frac{1}{10}$ 8. $\frac{23}{40}$

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- | | | | | | | | |
|---------------------|-----------------|----------------|------------------|---------------------|-----------------|------------------|------------------|
| a | b | c | d | a | b | c | d |
| 1. $4\frac{11}{15}$ | $4\frac{5}{24}$ | $3\frac{2}{9}$ | $4\frac{27}{40}$ | 3. $5\frac{11}{12}$ | $3\frac{2}{15}$ | $6\frac{19}{24}$ | $4\frac{25}{36}$ |
| 2. $4\frac{1}{3}$ | $2\frac{1}{8}$ | $3\frac{2}{7}$ | $\frac{2}{9}$ | 4. $6\frac{5}{6}$ | $\frac{7}{12}$ | $7\frac{7}{10}$ | $9\frac{8}{15}$ |

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- | | | | |
|--------------------|------------------|------------------|------------------|
| a | b | c | d |
| 1. $6\frac{1}{20}$ | $3\frac{11}{12}$ | $4\frac{23}{30}$ | $6\frac{5}{24}$ |
| 2. $2\frac{3}{10}$ | $2\frac{2}{9}$ | $3\frac{7}{8}$ | $2\frac{13}{24}$ |
| 3. $\frac{17}{40}$ | $2\frac{13}{18}$ | $3\frac{13}{30}$ | $4\frac{19}{60}$ |

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- | | | | | | | | |
|---------------------|----------------|-----------------|------------------|----------------------|------------------|--------------------|-----------------|
| a | b | c | d | a | b | c | d |
| 1. $1\frac{1}{2}$ | $\frac{3}{8}$ | $1\frac{2}{3}$ | $\frac{2}{3}$ | 4. $4\frac{7}{15}$ | $6\frac{37}{56}$ | $6\frac{31}{60}$ | $\frac{7}{10}$ |
| 2. $1\frac{55}{72}$ | $\frac{4}{21}$ | $1\frac{5}{18}$ | $\frac{1}{3}$ | 5. $10\frac{11}{20}$ | $14\frac{3}{14}$ | $10\frac{29}{120}$ | $8\frac{3}{10}$ |
| 3. $8\frac{4}{9}$ | $\frac{7}{10}$ | $5\frac{1}{8}$ | $7\frac{29}{36}$ | | | | |

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1. $2\frac{1}{8}$ 3. $4\frac{1}{4}$ 5. $5\frac{1}{8}$ 7. $\frac{19}{20}$
2. $\frac{3}{8}$ 4. $2\frac{1}{8}$ 6. $4\frac{33}{40}$

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- | | | | | | | | |
|--------------------|------------------|-----------------|----------------|---------------------|------------------|--------------------|------------------|
| a | b | c | d | a | b | c | d |
| 1. $\frac{7}{8}$ | $\frac{1}{2}$ | $1\frac{1}{6}$ | $\frac{2}{9}$ | 4. $5\frac{13}{30}$ | $3\frac{11}{40}$ | $5\frac{59}{72}$ | $6\frac{19}{24}$ |
| 2. $1\frac{1}{18}$ | $1\frac{47}{72}$ | $\frac{13}{30}$ | $\frac{2}{9}$ | 5. $3\frac{17}{20}$ | $3\frac{1}{8}$ | $12\frac{59}{120}$ | $11\frac{7}{24}$ |
| 3. $5\frac{8}{9}$ | $2\frac{3}{7}$ | $5\frac{5}{24}$ | $3\frac{5}{8}$ | | | | |

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- | | | | | | | | |
|------------------|-----------------|---------------|-----------------|--------------------|----------------|----------------|----------------|
| a | b | c | d | a | b | c | d |
| 1. 8 | $10\frac{1}{2}$ | 10 | $10\frac{1}{2}$ | 4. $1\frac{1}{4}$ | $\frac{9}{10}$ | 2 | $1\frac{1}{3}$ |
| 2. $\frac{1}{8}$ | $\frac{3}{10}$ | $\frac{1}{7}$ | $\frac{4}{27}$ | 5. $13\frac{1}{2}$ | 1 | $1\frac{1}{2}$ | $\frac{1}{14}$ |
| 3. $\frac{2}{7}$ | $\frac{1}{2}$ | 2 | $1\frac{1}{6}$ | | | | |

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- | | | | | | |
|-------------------|----------------|-----------------|----------------|----------------|----------------|
| a | b | c | d | e | f |
| 1. $\frac{5}{3}$ | $\frac{8}{7}$ | $\frac{5}{4}$ | $\frac{7}{5}$ | $\frac{9}{4}$ | $\frac{7}{6}$ |
| 2. $\frac{3}{5}$ | $\frac{7}{8}$ | $\frac{4}{5}$ | $\frac{5}{7}$ | $\frac{4}{9}$ | $\frac{6}{7}$ |
| 3. 8 | 3 | 4 | 9 | 16 | 14 |
| 4. $\frac{1}{8}$ | $\frac{1}{3}$ | $\frac{1}{4}$ | $\frac{1}{9}$ | $\frac{1}{16}$ | $\frac{1}{14}$ |
| 5. $\frac{1}{8}$ | $\frac{1}{3}$ | $\frac{1}{4}$ | $\frac{1}{9}$ | $\frac{1}{16}$ | $\frac{1}{14}$ |
| 6. $\frac{5}{8}$ | $\frac{1}{6}$ | $\frac{3}{2}$ | $\frac{6}{11}$ | $\frac{4}{7}$ | $\frac{1}{12}$ |
| 7. $\frac{1}{15}$ | $\frac{9}{10}$ | $\frac{11}{12}$ | $\frac{1}{17}$ | $\frac{9}{8}$ | $\frac{2}{17}$ |
| 8. $\frac{8}{15}$ | $\frac{12}{5}$ | $\frac{1}{11}$ | $\frac{11}{7}$ | 11 | $\frac{3}{17}$ |
| 9. $\frac{1}{10}$ | $\frac{1}{13}$ | 17 | $\frac{11}{5}$ | $\frac{7}{9}$ | $\frac{1}{5}$ |

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- | | | | | | | | |
|-------------------|----------------|----------------|-------------------|----------------|-----------------|----------------|----------------|
| a | b | c | d | a | b | c | d |
| 1. 8 | 3 | 5 | 3. $5\frac{1}{2}$ | $6\frac{1}{3}$ | $4\frac{2}{3}$ | $4\frac{1}{2}$ | |
| 2. $3\frac{3}{4}$ | $3\frac{2}{5}$ | $6\frac{1}{3}$ | $3\frac{1}{7}$ | 4. 8 | $17\frac{1}{3}$ | $7\frac{1}{3}$ | $7\frac{1}{7}$ |

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- | | | | |
|-------|-----------------|-----------------|-----------------|
| a | b | c | d |
| 1. 30 | 16 | 28 | 30 |
| 2. 49 | $37\frac{1}{2}$ | $42\frac{2}{3}$ | $32\frac{2}{5}$ |
| 3. 54 | 16 | 34 | 16 |

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1. 8 3. 60 5. 64 7. 18
2. 27 4. $7\frac{1}{2}$ 6. $13\frac{1}{3}$

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{1}{12}$	$\frac{1}{8}$	$\frac{1}{15}$	$\frac{1}{12}$	3. $\frac{1}{8}$	$\frac{1}{9}$	$\frac{1}{5}$	$\frac{1}{12}$
2. $\frac{3}{20}$	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{5}{18}$				

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1. $\frac{1}{6}$	3. $\frac{1}{15}$	5. $\frac{7}{32}$	7. $\frac{3}{14}$
2. $\frac{1}{8}$	4. $\frac{2}{9}$	6. $\frac{1}{6}$	

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{2}{5}$	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{2}{3}$	3. 2	$\frac{1}{2}$	$2\frac{2}{9}$	$1\frac{1}{4}$
2. $1\frac{1}{5}$	$\frac{6}{7}$	8	$1\frac{1}{4}$				

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1. 3	3. 6	5. 4	7. 5	9. 4
2. 3	4. $4\frac{1}{2}$	6. 2	8. 2	

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 12	$\frac{4}{35}$	$\frac{1}{2}$	$\frac{9}{10}$	4. $\frac{1}{5}$	2	$1\frac{1}{4}$	$7\frac{1}{2}$
2. $1\frac{1}{4}$	24	$\frac{1}{6}$	$\frac{3}{7}$	5. 1	$\frac{27}{28}$	21	$\frac{3}{14}$
3. $2\frac{1}{2}$	$1\frac{1}{8}$	15	$\frac{2}{27}$				

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1. 27	3. 2	5. $\frac{1}{8}$	7. $\frac{1}{15}$
2. $\frac{1}{12}$	4. 12	6. 3	8. $\frac{3}{20}$

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 15	$10\frac{2}{3}$	6	$11\frac{2}{3}$	4. $1\frac{1}{2}$	$1\frac{1}{15}$	$1\frac{1}{6}$	$\frac{3}{4}$
2. $\frac{1}{6}$	$\frac{4}{21}$	$\frac{1}{9}$	$\frac{3}{28}$	5. $9\frac{1}{3}$	1	$\frac{1}{16}$	$\frac{2}{3}$
3. $\frac{4}{9}$	$\frac{1}{2}$	2	$1\frac{1}{3}$				

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{5}{6}$	$\frac{7}{15}$	$\frac{2}{7}$	$\frac{9}{25}$	4. $\frac{3}{20}$	$\frac{4}{15}$	$\frac{1}{9}$	$\frac{1}{3}$
2. $2\frac{2}{9}$	$1\frac{1}{5}$	3	$4\frac{1}{2}$	5. $\frac{18}{35}$	$\frac{9}{20}$	$3\frac{3}{4}$	$1\frac{1}{2}$
3. $6\frac{3}{10}$	$3\frac{1}{9}$	$4\frac{1}{5}$	$3\frac{1}{9}$				

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{3}{4}$	$\frac{7}{18}$	$\frac{37}{80}$	$\frac{20}{21}$	3. $1\frac{9}{16}$	$1\frac{2}{13}$	$\frac{9}{10}$	$1\frac{1}{11}$
2. $1\frac{1}{2}$	$2\frac{2}{3}$	$1\frac{1}{7}$	$1\frac{1}{20}$				

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1. $\frac{3}{8}$	3. 6	5. $2\frac{7}{8}$	7. 12
2. 4	4. $1\frac{5}{12}$	6. $4\frac{1}{2}$	8. 10

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $4\frac{1}{2}$	14	2	$3\frac{2}{3}$	3. $5\frac{3}{5}$	$\frac{7}{10}$	$4\frac{1}{2}$	$\frac{3}{4}$
2. $\frac{3}{16}$	$\frac{1}{6}$	$\frac{2}{15}$	$\frac{18}{35}$				

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1. 14	3. 5	5. 13	7. 6	9. 20
2. 3	4. $7\frac{1}{2}$	6. 26	8. 6	

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{8}{15}$	$1\frac{1}{14}$	$\frac{24}{35}$	$1\frac{7}{8}$
2. $1\frac{3}{5}$	$\frac{8}{15}$	$1\frac{1}{9}$	$\frac{6}{7}$
3. $1\frac{1}{2}$	$1\frac{1}{2}$	3	$2\frac{1}{7}$

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1. 4	3. $22\frac{4}{5}$	5. 9
2. 6	4. $16\frac{1}{4}$	6. $5\frac{1}{2}$

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{8}{15}$	$\frac{6}{7}$	$1\frac{13}{35}$	$\frac{2}{35}$	4. $1\frac{1}{2}$	$3\frac{1}{3}$	$1\frac{1}{14}$	$\frac{5}{8}$
2. $2\frac{2}{15}$	$\frac{5}{12}$	6	$\frac{1}{2}$	5. $1\frac{11}{16}$	$\frac{15}{56}$	$1\frac{1}{4}$	$\frac{3}{10}$
3. $2\frac{1}{10}$	$\frac{10}{11}$	$\frac{3}{10}$	$5\frac{1}{4}$				

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1. $\frac{5}{6}$	2. $3\frac{1}{6}$	3. 7; $\frac{1}{5}$	4. 8; $\frac{1}{6}$	5. 4	6. 6	7. 1
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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. $\frac{7}{15}$	$\frac{9}{20}$	$\frac{2}{3}$	$\frac{3}{4}$	4. $\frac{2}{9}$	$\frac{6}{35}$	$\frac{3}{14}$	$\frac{3}{5}$
2. $4\frac{2}{7}$	$3\frac{3}{5}$	$2\frac{1}{2}$	$7\frac{1}{2}$	5. $2\frac{2}{9}$	$2\frac{1}{7}$	$2\frac{2}{7}$	$\frac{2}{3}$
3. $1\frac{17}{25}$	$1\frac{23}{40}$	$3\frac{1}{3}$	$1\frac{7}{8}$				

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<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>
1. 60	70	6. 8	9
2. 4	20	7. 28	15
3. 108	248	8. 18	33
4. 2	192	9. 60	54
5. 480	11		$36\frac{3}{4}$

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<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>
1. 72	5	6. 120	6
2. 27	4	7. 6	4
3. 180	4	8. 10	5
4. 180	2	9. 16	3
5. 300	6	10. 15	6

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1. 7	3. 120	5. 180	7. 375	9. 300
2. 6	4. 112	6. 20	8. 10	

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<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>
1. 64	165	7. 270	7
2. 113	195	8. 168	5
3. 17	36	9. 56	14
4. 5	55	10. 114	195
5. 7	7	11. 445	19
6. 23	81	12. 260	107

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1. 105	3. 15	5. 69	7. 10	9. 32
2. 75	4. 298	6. 567	8. 330	

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<i>a</i>	<i>b</i>	<i>c</i>
1. 84	25	136
2. $4\frac{1}{2}$	$107\frac{1}{4}$	$105\frac{3}{16}$
3. 96	5. $67\frac{1}{2}$	7. $40\frac{11}{16}$
4. 144	6. $2\frac{1}{4}$	

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1. 32	3. 432	5. 672	7. 384
2. 24	4. 8400	6. 7200	8. 1440

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<i>a</i>	<i>b</i>	<i>c</i>	<i>a</i>	<i>b</i>
1. 54	44	49	4. $17\frac{1}{2}$	6. $8\frac{3}{4}$
2. $3\frac{3}{4}$	$24\frac{3}{4}$	$37\frac{1}{2}$	5. $13\frac{1}{2}$	7. $3\frac{3}{4}$
3. 36				

Answers for SPECTRUM MATHEMATICS (Green Book)

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|--------|--------|---------|---------------------|
| 1. 64 | 3. 231 | 5. 9600 | 7. $229\frac{1}{2}$ |
| 2. 140 | 4. 216 | 6. 100 | |

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- | <i>a</i> | <i>b</i> | <i>c</i> |
|----------|----------------------|-----------------|
| 1. 108 | 125 | 96 |
| 2. 180 | $138\frac{1}{8}$ | $78\frac{3}{4}$ |
| 3. 96 | 5. $47\frac{13}{16}$ | 7. 77 |
| 4. 30 | 6. $243\frac{3}{4}$ | |

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|----------|---------|--------|----------|
| 1. 10800 | 3. 7680 | 5. 80 | 7. 2700 |
| 2. 288 | 4. 4608 | 6. 240 | 8. 17000 |

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- | <i>a</i> | <i>b</i> | <i>c</i> |
|---------------------|-----------------|------------------------|
| 1. 48 | 91 | $65\frac{1}{4}$ |
| 2. $82\frac{1}{2}$ | $28\frac{1}{2}$ | $56\frac{1}{4}$ |
| 3. 105 | | |
| 4. $202\frac{1}{2}$ | | |
| 5. $175\frac{1}{2}$ | | |
| | | 6. $115\frac{1}{2}$ |
| | | 7. $35\frac{3}{4}$ |
| | | 8. $146\frac{1}{4}$ |
| | | 9. $55\frac{1}{8}$ |
| | | 10. $404\frac{11}{16}$ |

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- | | | | |
|---------|--------------------|--------------------|---------|
| 1. 4200 | 3. 3072 | 5. 25200 | 7. 2592 |
| 2. 450 | 4. $37\frac{1}{2}$ | 6. $87\frac{3}{4}$ | 8. 48 |

Page 89

- | <i>a</i> | <i>b</i> | <i>a</i> | <i>b</i> | |
|----------|----------|---------------------|----------|---------------------|
| 1. 6 | 92 | 7. 6 | 19 | 13. $29\frac{3}{4}$ |
| 2. 15 | 16 | 8. 5 | 7 | 14. 11 |
| 3. 4 | 215 | 9. 72 | | 15. 261 |
| 4. 180 | 285 | 10. $67\frac{1}{2}$ | | 16. 80 |
| 5. 4 | 56 | 11. $3\frac{3}{4}$ | | 17. $10\frac{1}{2}$ |
| 6. 8 | 5 | 12. $58\frac{1}{2}$ | | |

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- | <i>a</i> | <i>b</i> | <i>c</i> |
|------------------|-------------------|-----------------|
| 1. .7 | 3.19 | 5.025 |
| 2. .8 | 3.32 | 3.128 |
| 3. $\frac{4}{5}$ | $9\frac{33}{100}$ | $16\frac{1}{8}$ |

- | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----------|----------|----------|----------|
| 4. .8 | 1.07 | 8.023 | 14.076 |
| 5. 1.1 | .76 | .438 | 10.274 |
| 6. 1.08 | 1.086 | 7.525 | 46.208 |
| 7. .32 | 3.317 | 3.55 | .285 |

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- | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|--------------------|------------------|-------------------------------|-------------------|
| 1. .6 | .2 | .8 | .5 |
| 2. 4.7 | 5.9 | 18.2 | 423.6 |
| 3. $\frac{7}{10}$ | $\frac{3}{10}$ | $\frac{1}{10}$ | $\frac{9}{10}$ |
| 4. $4\frac{9}{10}$ | $12\frac{7}{10}$ | $15\frac{1}{10}$ | $217\frac{3}{10}$ |
| 5. .8 | 3.7 | 8. nine tenths | |
| 6. .4 | 25.8 | 9. three and seven tenths | |
| 7. .5 | 100.6 | 10. twenty one and two tenths | |

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- | <i>a</i> | <i>b</i> | <i>c</i> |
|----------|----------|----------|
| 1. .08 | .16 | .05 |
| 2. 1.36 | 8.06 | 9.12 |

- | <i>a</i> | <i>b</i> | <i>c</i> |
|------------------------|--------------------|---------------------|
| 3. 12.45 | 43.67 | 26.04 |
| 4. 142.08 | 436.42 | 389.89 |
| 5. $\frac{17}{100}$ | $\frac{3}{100}$ | $\frac{41}{100}$ |
| 6. $5\frac{19}{100}$ | $6\frac{47}{100}$ | $5\frac{1}{100}$ |
| 7. $21\frac{7}{100}$ | $23\frac{99}{100}$ | $44\frac{89}{100}$ |
| 8. $142\frac{33}{100}$ | $483\frac{3}{100}$ | $185\frac{63}{100}$ |
| 9. .08 | 6.23 | |
| 10. .95 | 14.60 | |
| 11. .48 | 4.44 | |

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- | <i>a</i> | <i>b</i> | <i>c</i> | <i>a</i> | <i>b</i> | <i>c</i> |
|-----------------------|--------------------|--------------------|------------------------|---------------------|---------------------|
| 1. .008 | .017 | .054 | 7. $4\frac{11}{1000}$ | $2\frac{101}{1000}$ | $6\frac{1}{1000}$ |
| 2. .125 | .430 | .306 | 8. $36\frac{37}{1000}$ | $3\frac{433}{1000}$ | $100\frac{1}{1000}$ |
| 3. 4.004 | 3.041 | 6.183 | | | |
| 4. 35.078 | 42.019 | 196.006 | | | |
| 5. $\frac{9}{1000}$ | $\frac{19}{1000}$ | $\frac{3}{1000}$ | 9. .053 | | $10\frac{1}{1012}$ |
| 6. $\frac{123}{1000}$ | $\frac{441}{1000}$ | $\frac{219}{1000}$ | 10. .011 | | 12.018 |
| | | | 11. .065 | | 12.123 |

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- | <i>a</i> | <i>b</i> | <i>c</i> | <i>a</i> | <i>b</i> | <i>c</i> |
|----------|----------|----------|----------|----------|----------|
| 1. .6 | .60 | .600 | 3. 2.8 | .35 | .056 |
| 2. 3.5 | .28 | 2.190 | 4. 2.2 | .38 | .352 |

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- | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|------------------------|---------------------|-----------------|-------------------|
| 1. $\frac{3}{10}$ | $\frac{1}{10}$ | $\frac{2}{5}$ | $\frac{1}{2}$ |
| 2. $2\frac{7}{10}$ | $3\frac{3}{10}$ | $7\frac{1}{5}$ | $5\frac{4}{5}$ |
| 3. $\frac{17}{100}$ | $\frac{3}{100}$ | $\frac{3}{20}$ | $\frac{4}{5}$ |
| 4. $5\frac{7}{100}$ | $8\frac{43}{100}$ | $4\frac{1}{20}$ | $2\frac{11}{25}$ |
| 5. $\frac{3}{1000}$ | $\frac{17}{1000}$ | $\frac{1}{8}$ | $\frac{9}{200}$ |
| 6. $3\frac{121}{1000}$ | $2\frac{987}{1000}$ | $4\frac{1}{4}$ | $3\frac{1}{125}$ |
| 7. $4\frac{7}{20}$ | $\frac{7}{10}$ | $6\frac{1}{5}$ | $1\frac{7}{1000}$ |
| 8. $2\frac{3}{5}$ | $3\frac{6}{25}$ | $\frac{1}{4}$ | $3\frac{1}{2}$ |
| 9. $5\frac{1}{8}$ | $\frac{9}{10}$ | $2\frac{2}{5}$ | $\frac{1}{25}$ |
| 10. $\frac{1}{100}$ | $\frac{51}{1000}$ | $\frac{4}{5}$ | $2\frac{19}{100}$ |

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- | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|---------------------|-------------------|--------------------|-----------------|
| 1. .2 | .35 | .445 | |
| 2. 7.5 | 4.58 | 3.360 | |
| 3. $\frac{9}{10}$ | $3\frac{3}{5}$ | $\frac{7}{20}$ | $17\frac{3}{4}$ |
| 4. $\frac{1}{40}$ | $8\frac{89}{200}$ | $24\frac{61}{200}$ | $8\frac{1}{20}$ |
| 5. $\frac{3}{5}$ | .6 | .60 | |
| 6. $2\frac{7}{10}$ | 2.7 | | 2.700 |
| 7. $5\frac{2}{5}$ | | 5.40 | 5.400 |
| 8. 3.5 | | 3.50 | 3.500 |
| 9. $17\frac{9}{10}$ | | 17.90 | 17.900 |
| 10. $80\frac{4}{5}$ | 80.8 | | 80.800 |

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- | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> |
|----------|----------|----------|----------|----------|
| 1. .9 | 1.7 | 12.6 | 32.1 | 52.4 |
| 2. .77 | 1.24 | 7.94 | 96.81 | 62.21 |
| 3. .245 | 1.332 | 4.339 | 5.813 | 43.223 |
| 4. 1.8 | 7.5 | 9.9 | 46.8 | 8.4 |
| 5. 1.00 | \$1.04 | 10.54 | \$41.89 | \$37.19 |
| 6. .721 | .696 | 10.620 | 6.329 | 38.114 |

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1. 2	3. 8.03	5. .218	7. 7.1
2. 1.5	4. .63	6. 3.9	8. 16

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. 1.32	1.23	1.001	1.143	.845
2. 6.058	13.14	4.116	8.333	34.43
3. 1.238	.96	2.48	1.081	.915
4. 7.122	16.837	10.944	11.461	10.104
<i>a</i>	<i>b</i>			
5. 1.71		1.166		
6. .694		.853		
7. 1.201		8.024		
8. 2.71		26.556		

Page 100

1. 1.25	3. 1.225	5. \$66.55	7. \$43.50
2. 1.50 or 1.5	4. 1.175	6. \$26.55	8. 5.495

Page 101

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. .4	.7	.4	.8	.3
2. .11	.33	.05	.48	\$.15
3. .111	.289	.208	.439	.379
4. 1.4	4.6	4.9	4.9	18.3
5. 3.13	\$3.82	3.69	\$12.65	\$3.77
6. 2.212	2.209	2.812	23.802	11.196
7. 10.4	2.48	7.13	1.955	12.388

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1. .2	3. .007	5. 2.775	7. 1.8
2. .5	4. .020	6. 2.40	

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. .52	2.16	2.68	3.216	.646
2. .113	.293	4.861	2.748	.982
3. .45	.24	5.18	4.65	7.58
4. .591	.125	2.044	2.868	10.686
5. .436	.085	4.408	3.788	10.536
6. 32.085	38.925	39.036	23.85	1.076
7. 37.52	318.79	1.026	78.667	89.397

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1. Ralph; 6.05	3. 8.006	5. 7.187
2. .35	4. .819	

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. .175	9.4	3.08	
2. .90	3.2	5.300	
3. $\frac{3}{40}$	$8\frac{3}{5}$	$16\frac{49}{100}$	
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
4. 1.3	.95	14.361	30.646
5. 1.7	4.51	.067	5.697
6. 1.32	.415	18.273	57.355
7. .166	2.59	2.784	4.825

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 3.5	.8	3.6	1.2
2. .42	.06	.32	.72
3. .012	.008	.006	.004
4. .21	.08	.24	.54
5. .048	.005	.006	.56
6. .0027	.0008	.0042	.0004
7. 3.6	4.8	.235	.0162
8. 2.52	.272	3.6573	.5928
9. 86.32	1713.92	16.1544	8.5448

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 14	1.4	.14	.014
2. 6	.6	.06	.006
3. 48	4.8	.48	.048
4. 4	.4	.04	.004
5. 32	3.2	.32	.032
6. 32	3.2	.32	.032
7. 15	1.5	.15	.015
8. 8	.8	.08	.008
9. 5.6	.54	.35	.081
10. .64	4.2	.006	.09
11. 1.8	.009	.24	.09
12. .054	.16	4.5	1.6

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 12	.12	.012	.0012
2. 6	.06	.006	.0006
3. 42	.42	.042	.0042
4. 8	.08	.008	.0008
5. 54	.54	.054	.0054
6. 54	.54	.054	.0054
7. 32	.32	.032	.0032
8. 5	.05	.005	.0005
9. .45	.0024	.0006	.024
10. .008	.56	.0032	.0063
11. .0063	.049	.06	.0024
12. .0014	.027	.0004	.048

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 44.8	4.48	.448	.0448
2. 129.6	12.96	1.296	.1296
3. 8.84	.884	.0884	.88.4
4. 1.924	192.4	19.24	.1924
5. 7.5	.075	.75	.0075
6. .48	.48	.048	.0048
7. 2.19	.0219	2.19	.219

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. 3.5	.6	7.2	2.1	.8
2. .48	.06	.21	.08	.42
3. .32	.06	.56	.54	.15
4. .045	.035	.064	.006	.015
5. .0024	.0024	.0009	.0056	.0006
6. .063	.048	.024	.032	.035
7. .0045	.0081	.0012	.0009	.0025

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1. 2.4	6.3	.063	.48	.15
2. .72	.216	.105	.0648	16.8
3. 3.44	.216	.0532	.0162	.736
4. .0411	38.56	362.8	4.571	2.496
5. 16.05	20.24	.2836	.0842	.4527
6. 1.134	.928	.075	.2226	57.76
7. .6545	3.528	85.33	.4464	3.9075
8. 75.888	9.2796	73.536	.8164	.5328

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1. 5.4	3. 1.14	5. .144	7. 3.7996	9. 473.6
2. .168	4. 21.05	6. .192	8. 525.4	

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<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1. 1.215	.1216	.1118	18.75
2. 7.897	1.9992	16.324	4.4469
3. 9.5742	114.552	254.904	34.4258
4. 38.5014	175.417	19.4688	45.0294
5. 1450.992	73.9968	961.704	163.5474

Answers for SPECTRUM MATHEMATICS (Green Book)

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- | | | | |
|---------|------------|------------|-----------|
| 1. 40.8 | 3. 1.608 | 5. 2.2435 | 7. 9486.4 |
| 2. .336 | 4. 1110.06 | 6. 5639.75 | 8. 94.864 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> |
|----|----------|----------|----------|----------|----------|
| 1. | .48 | 1.26 | .2772 | 2.226 | 4.844 |
| 2. | 5.4 | .72 | 29.82 | .48 | 75.92 |
| 3. | .015 | .576 | 2.835 | 35.38 | 14.952 |
| 4. | .08 | .212 | .2408 | 118.712 | 50.3052 |
| 5. | .0054 | .0134 | 37.24 | 15.5944 | 253.9376 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|----------|----------|----------|----------|
| 1. | 7.3 | .27 | .045 | .0019 |
| 2. | 20 | 150 | 2100 | 4000 |
| 3. | 1.2 | 21 | 2.4 | 5 |
| 4. | 80 | 60 | 3630 | 600 |
| 5. | 150 | .14 | .46 | .92 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>e</i> |
|----|----------|----------|----------|----------|----------|
| 1. | 73 | 7.3 | .73 | .073 | .0073 |
| 2. | 1.87 | .0027 | .033 | 1.16 | 4.2 |
| 3. | 3.5 | .042 | .0027 | 6.1 | .56 |

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- | | | | |
|--------|---------|---------|----------|
| 1. .2 | 3. .003 | 5. .001 | 7. .0012 |
| 2. 2.3 | 4. .06 | 6. 18.1 | 8. .0031 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|----------|----------|----------|----------|
| 1. | 180 | 270 | 510 | 370 |
| 2. | 1800 | 2400 | 1700 | 3700 |
| 3. | 3000 | 3000 | 4000 | 31000 |

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- | | | | |
|--------|----------|---------|---------|
| 1. 180 | 3. 13000 | 5. 240 | 7. 1000 |
| 2. 130 | 4. 650 | 6. 1250 | 8. 12 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|----------|----------|----------|----------|----|----------|----------|----------|----------|
| 1. | 18 | 2.7 | .49 | 92 | 3. | 4 | .6 | 18 | 3.7 |
| 2. | 14 | 1.7 | 2.8 | 36 | | | | | |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|----------|----------|----------|----------|
| 1. | 60 | 480 | 230 | 30 |
| 2. | 800 | 50 | 270 | 500 |
| 3. | 370 | 1700 | 340 | 1200 |
| 4. | 65 | 70 | 200 | 140 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | | <i>a</i> | <i>b</i> | <i>c</i> |
|----|----------|----------|----------|----|----------|----------|----------|
| 1. | .48 | 2.9 | .017 | 4. | 140 | 1800 | 280 |
| 2. | 150 | 4000 | 200 | 5. | 120 | 28000 | 1.6 |
| 3. | 1.4 | 5300 | 7.9 | | | | |

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- | | | | |
|----------|---------|--------|-------|
| 1. 18 | 3. 1700 | 5. 840 | 7. .1 |
| 2. 1; .5 | 4. .65 | 6. 10 | |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|----------|----------|----------|----------|
| 1. | 5 | 60 | 500 | 500 |
| 2. | 3.3 | 1.8 | 4.6 | .25 |
| 3. | .58 | 2.7 | 4.2 | .032 |
| 4. | 3000 | 4.2 | .073 | 1.2 |

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- | | | | |
|----------|-------|------|--------|
| 1. 8 | 3. 80 | 5. 4 | 7. 100 |
| 2. 3; .7 | 4. 8 | 6. 5 | 8. .01 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | | <i>a</i> | <i>b</i> | <i>c</i> |
|----|----------|----------|----------|----|----------|----------|----------|
| 1. | 8.2 | .12 | 500 | 3. | .47 | 2.8 | 9.2 |
| 2. | 3.3 | 120 | 76 | | | | |

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- | | | | |
|---------|--------|---------|--------|
| 1. 1.33 | 3. 40 | 5. .25 | 7. .01 |
| 2. 9.2 | 4. 9.5 | 6. .024 | |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|----------|----------|----------|----------|
| 1. | .023 | .14 | 3.7 | .0051 |
| 2. | 1100 | 12000 | 60 | 2100 |
| 3. | 23 | 1.4 | 2.4 | 7 |
| 4. | 900 | 70 | 90 | 10300 |
| 5. | 25 | 1.4 | 2.6 | .073 |

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- | | <i>a</i> | <i>b</i> | | <i>a</i> | <i>b</i> |
|----|-----------------|---------------|-----|-------------------------|------------------------------|
| 1. | 7 | 90 | 8. | $\frac{9}{20}$ | $\frac{14}{25}$ |
| 2. | 35 | 52 | 9. | .59 or $\frac{59}{100}$ | 7.5 or $7\frac{1}{2}$ |
| 3. | 7 | 40 | 10. | 84 | 40.05 or $40\frac{1}{20}$ |
| 4. | 13.5 | 135 | 11. | 36 | 122.01 or $122\frac{1}{100}$ |
| 5. | .06 | .67 | 12. | 21.6 or $21\frac{3}{5}$ | 63 |
| 6. | .0625 | 1.25 | 13. | 33.75 | 8.1228 |
| 7. | $\frac{9}{100}$ | $\frac{1}{5}$ | 14. | 52.5 | 5.6303 |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> |
|----|------------------|----------|----------|------------------|
| 1. | $\frac{1}{100}$ | .01 | 8. | $\frac{49}{100}$ |
| 2. | $\frac{7}{100}$ | .07 | 9. | $\frac{61}{100}$ |
| 3. | $\frac{29}{100}$ | .29 | 10. | $\frac{9}{100}$ |
| 4. | $\frac{47}{100}$ | .47 | 11. | $\frac{37}{100}$ |
| 5. | $\frac{53}{100}$ | .53 | 12. | $\frac{77}{100}$ |
| 6. | $\frac{21}{100}$ | .21 | 13. | $\frac{91}{100}$ |
| 7. | $\frac{83}{100}$ | .83 | 14. | $\frac{33}{100}$ |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | | <i>a</i> | <i>b</i> | <i>c</i> |
|----|-----------------|------------------|-----------------|-----|----------|----------|----------|
| 1. | $\frac{1}{4}$ | $\frac{9}{20}$ | $1\frac{3}{5}$ | 6. | 20% | 75% | 5% |
| 2. | $\frac{13}{20}$ | $1\frac{1}{5}$ | $\frac{6}{25}$ | 7. | 214% | 60% | 120% |
| 3. | $\frac{39}{50}$ | $\frac{11}{20}$ | $2\frac{3}{5}$ | 8. | 90% | 28% | 225% |
| 4. | $\frac{7}{10}$ | $1\frac{11}{25}$ | $\frac{43}{50}$ | 9. | 160% | 30% | 16% |
| 5. | $\frac{19}{20}$ | $\frac{2}{5}$ | $1\frac{4}{5}$ | 10. | 35% | 62% | 140% |

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- | | <i>a</i> | <i>b</i> | <i>c</i> | | <i>a</i> | <i>b</i> | <i>c</i> |
|----|----------|----------|----------|-----|----------|----------|----------|
| 1. | .135 | .375 | .0625 | 7. | 60% | 52% | 32.5% |
| 2. | .074 | .0475 | .0257 | 8. | 24.75% | 80% | 65% |
| 3. | .0775 | .625 | .087 | 9. | 14.6% | 16.75% | 50% |
| 4. | .325 | .0895 | .096 | 10. | 6% | .7% | 6.25% |
| 5. | .083 | .175 | .0375 | 11. | 7.5% | .73% | .09% |
| 6. | .0078 | .078 | .0178 | 12. | 90% | 19% | 38.9% |

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- | | | | |
|--------------------|---------|-------------------|----------|
| 1. 75% | 3. .250 | 5. $\frac{9}{20}$ | 7. 98.7% |
| 2. $\frac{13}{20}$ | 4. 80% | 6. .615 | 8. 70% |

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- | | <i>a</i> | <i>b</i> | | <i>a</i> | <i>b</i> |
|----|-----------------|-------------------|-----|------------------|------------------|
| 1. | $4\frac{1}{2}$ | $68\frac{29}{50}$ | 6. | $2\frac{71}{80}$ | 128 |
| 2. | 16 | $9\frac{9}{20}$ | 7. | $99\frac{3}{5}$ | $1\frac{31}{50}$ |
| 3. | $13\frac{3}{5}$ | $18\frac{1}{5}$ | 8. | $5\frac{11}{50}$ | 336 |
| 4. | $2\frac{2}{5}$ | $7\frac{43}{50}$ | 9. | $5\frac{22}{25}$ | 225 |
| 5. | $36\frac{2}{5}$ | $10\frac{1}{5}$ | 10. | 725 | $3\frac{21}{25}$ |

Page 136
 1. 33 3. \$140 5. \$6 7. 3760
 2. 150 4. 10 6. \$2700

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	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>
1.	17.5	2.652	7. 89.28	9.56
2.	69.35	.5184	8. 392	65.94
3.	74.88	1.472	9. 96.5	12.6
4.	.493	163.8	10. 12.395	4.8672
5.	43.75	78.125	11. 642	34.44
6.	571.2	6.3936	12. 699.72	826.8

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 1. \$38 2. \$10.15 3. \$21 4. \$3.90 5. \$1.23

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1. .03	3%	11. 16
2. .25	25%	12. 62.4 or $62\frac{2}{5}$
3. .35	35%	13. 43.75
4. $\frac{3}{50}$	6%	14. 20.2176
5. $\frac{39}{100}$	39%	15. 8.1312
6. $\frac{1}{8}$	12.5%	
7. $\frac{1}{20}$.05	
8. $\frac{7}{25}$.28	
9. $\frac{3}{4}$.75	
10. $\frac{9}{10}$.9	

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	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	2595	86.18	22.898	$11\frac{3}{4}$	$9\frac{13}{24}$
2.	5351	72.635	152.853	$7\frac{5}{8}$	$2\frac{14}{15}$
3.	260145	44.9163	127 r36	25.3	
4.	$\frac{10}{21}$	$4\frac{7}{12}$	$1\frac{2}{7}$	$\frac{35}{64}$	
5.	6	$7\frac{1}{2}$ or 7.5			
6.	249	19.5			
7.	20	$62\frac{1}{2}$ or 62.5			

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	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	98	385	2818	6187	52699
2.	83	786	5259	6328	70128
3.	.9	11.1	.88	90.23	9.949
4.	4.6	47.4	49.18	49.886	174.642
5.	$\frac{5}{7}$	$\frac{7}{9}$	$\frac{3}{4}$	$1\frac{1}{2}$	
6.	$\frac{7}{8}$	$\frac{13}{15}$	$1\frac{5}{12}$	$1\frac{3}{20}$	
7.	$2\frac{19}{24}$	$2\frac{31}{35}$	$14\frac{5}{12}$	$12\frac{11}{42}$	

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 1. 574 3. $12\frac{1}{2}$ 5. $67\frac{1}{8}$ 7. $7\frac{2}{3}$
 2. 23.23 4. 142.8 6. 93.9

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	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	54	211	4022	5653	51210
2.	55	511	1149	3462	23107
3.	49	608	2954	759	38943
4.	.5	.97	.57	6.471	1.109
5.	.9	4.81	8.29	6.288	62.986
6.	$\frac{3}{7}$	$\frac{2}{9}$	$\frac{1}{3}$	$\frac{1}{2}$	
7.	$\frac{1}{12}$	$\frac{1}{2}$	$\frac{7}{24}$	$\frac{13}{36}$	
8.	$1\frac{3}{4}$	$3\frac{19}{24}$	$1\frac{7}{12}$	$2\frac{13}{20}$	

Page 144
 1. 2786 3. $43\frac{3}{4}$ 5. .025 7. \$7.62
 2. 1.8 4. 44449 6. $8\frac{3}{4}$

Page 145

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	224	648	4624	9639	60813
2.	576	10146	278553	206790	2811506
3.	71.4	79.36	17.898	6.4792	239.1131
4.	$\frac{3}{8}$	$\frac{16}{35}$	$\frac{35}{48}$	$\frac{1}{4}$	
5.	$1\frac{1}{2}$	$4\frac{3}{8}$	$5\frac{11}{16}$	$4\frac{2}{3}$	

Page 146
 1. 9020 3. $7\frac{1}{2}$ 5. 44.85 7. 6.51
 2. 381.36 4. 14400 6. $\frac{1}{2}$ 8. $\frac{5}{6}$

Page 147

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	19	36 r4	161 r1	621	1279
2.	15	69 r52	40 r14	167	859 r15
3.	315	900	3.4	2.8	41
4.	$\frac{2}{3}$	$2\frac{2}{7}$	$\frac{2}{9}$	$2\frac{1}{16}$	
5.	$\frac{5}{8}$	$\frac{7}{11}$	$2\frac{19}{24}$	$2\frac{1}{4}$	

Page 148
 1. 46 3. 3466; 5 5. 13.5 7. $1\frac{11}{16}$
 2. 749 4. 1.29 6. 12

Page 149

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	5	81		10. 87	
2.	6	20		11. $8\frac{3}{4}$	
3.	144	114		12. 28	
4.	3	256		13. 39	
5.	300	60		14. $18\frac{3}{4}$	
6.	10	7		15. 216	
7.	5	18		16. 66	
8.	40	5		17. $26\frac{1}{4}$	
9.	153				

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1.	.25	25%	10. 24
2.	.5 or .50	50%	11. 174
3.	.6 or .60	60%	12. 121
4.	$\frac{2}{5}$	40%	13. 22.75
5.	$\frac{3}{100}$	3%	14. 42
6.	$\frac{5}{8}$	62.5%	15. 105
7.	$\frac{7}{100}$.07	16. 46.72
8.	$\frac{3}{8}$.375	
9.	$\frac{19}{20}$.95	

Page 151
 1. 81 3. 450 5. 68 7. 3.90
 2. 312 4. 312 6. 3927 8. 150

Page 152

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
1.	62.676	$1\frac{19}{24}$	1014.913	$13\frac{7}{8}$	6. 117
2.	254375	31 r12	52.8836	4.5	7. $35\frac{3}{4}$
3.	$\frac{15}{32}$	$1\frac{5}{16}$	$6\frac{1}{6}$	$7\frac{7}{9}$	8. $11\frac{1}{4}$
4.	<i>a</i>	<i>b</i>			9. $28\frac{1}{8}$
5.	69	24			
	6	23.925			

The sequence of the six books in the SPECTRUM MATHEMATICS SERIES is Red, Orange, Yellow, Green, Blue, and Purple.

For each unit there is a PRE-TEST, instructional material, written exercises, verbal problems, and a TEST. The score of each TEST can be recorded on the *Record of Test Scores*.

RECORD OF TEST SCORES

Rank	Page											
	11	25	41	53	65	75	89	105	115	129	139	152
Excellent	25	25	20	20	20	20	25	25	25	20	25	20
Good	20	20	15	15	15	15	20	20	20	15	20	15
	15	15					15	15	15		15	
Fair			10	10	10	10				10		10
							10	10	10		10	
			5	5	5	5				5		5
Poor	5	5					5	5	5		5	
	0	0	0	0	0	0	0	0	0	0	0	0

To record the score you receive on a TEST:

- (1) Find the vertical scale below the page number of that TEST,
- (2) on that vertical scale, draw a • at the mark which represents your score.

For example, if your score for the TEST on page 11 is "My score: 15," draw a • at the 15-mark on the first vertical scale. A score of 15 would show that your rank on that test is "Good." You can check your progress from one test to the next by connecting the dots with a line segment.



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